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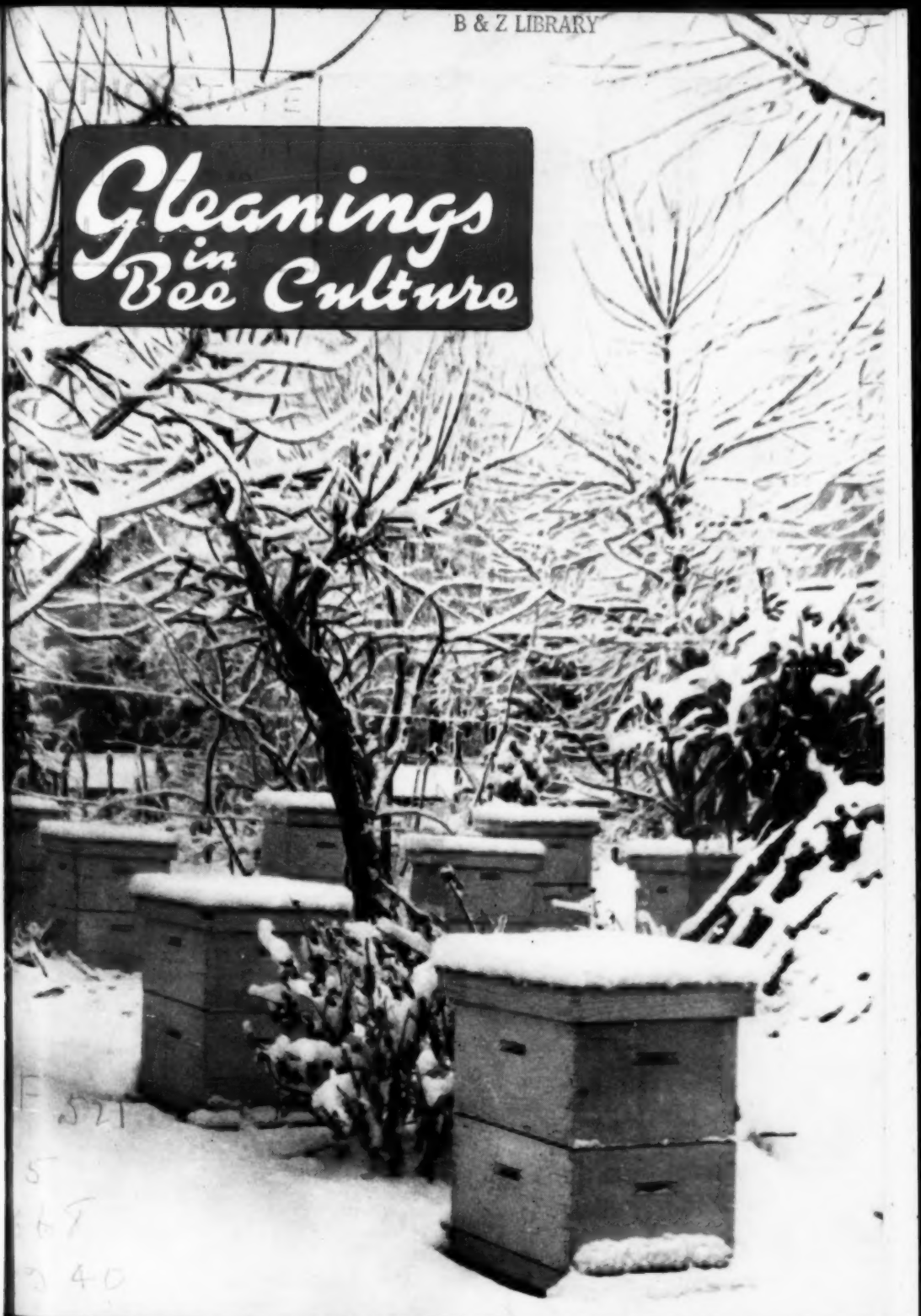

Gleanings in Bee Culture

January · 1940

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Gleanings in Bee Culture

Established 1873

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Subscription Rates—United States and Canada, one year, $1.00; two years for $1.50; three years for $2.00. Single copy, 10 cents. Other countries, 25c per year additional for postage. Discontinuance—Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of address—Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by postoffice money order, bank draft, express money order or check. Contribution to Gleanings columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. Advertising Rates—Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability—While the publishers do not guarantee advertisements in this journal, they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal.

Entered as second class mail matter at the Postoffice at Medina, Ohio. Published monthly

The A. I. Root Company, Publishers, Medina, Ohio

E. R. Root and M. J. Deyell, Editors; M. W. Hobart, Assistant Editor; H. H. Root, Associate Editor; D. C. Babcock, Circulation Manager.

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Nineteen-Forty

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The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (last half of November).

California Points: Southern California—The weather has been clear, with rainfall limited to the last few days of the month. Temperatures have been normal to above and bees have consumed more stores than usual. More rainfall is needed, especially where plants are shallow-rooted. Bees are working lightly on mustard and a few other late plants, especially on the desert where September rains brought out some bloom. Many colonies have ceased brood-rearing. Early Eucalytus is beginning to bloom in some areas. Demand for honey has been slow, with the market tone easier. Trading has been light, as beekeepers have been generally holding their light supplies firmly. Sales by beekeepers in ton lots or more at Southern California delivery points—sage-buckwheat, light amber to extra light amber $5.50-6.00 per case of 120 pounds, amber $5.00-5.50 per case; Orange, White 6-6¼c, few 6½c per lb., extra light amber 5-5¾c per lb.; Blythe district light amber to extra light amber alfalfa-mesquite $5.00 per case of 120 pounds. Beeswax is in moderate demand with a slightly weaker tendency and bringing beekeepers 20-21c, few 22c per lb. delivered Los Angeles. Beeswax offerings by beekeepers have been ample.

Imperial Valley—The market for alfalfa honey has weakened since our last report. Occasional sales light amber to extra light amber alfalfa reported at $5.15-5.25 per case of 120 pounds, though many beekeepers are still holding for $5.50-6.00 per case.

Central California—The weather has been clear and sunny with the exception of a few days during which rain fell over most of the area. Moisture is still insufficient to support plant growth, and additional rain is seriously needed. Bees have been consuming large amounts of stores due to the fact that temperatures have ranged above normal for the season. Eucalyptus is just budding. Very little honey is being gathered from any source. Late reports confirm earlier statements that spikeweed and blue-curl produced little surplus during the past season, and that the yields of alfalfa and cotton honey were appreciably below normal. Trading has been light with relatively small sales by beekeepers, many of whom prefer to hold their remaining lots in the hope of higher prices. Sales by beekeepers in ton lots or more at Central California delivery points—light amber mixed flowers 3¾-4¼c, amber mixed flowers 3¼-3½c; extra light amber to white bean 5-5¼c; extra light amber-alfalfa $5.00 per case of 120 pounds, cases returned; cotton-alfalfa, light amber to extra light amber 4¼-4½c; some light amber $5.00 per case of 120 pounds at country points and some $5.25 per case of 120 lbs. delivered Los Angeles. Light amber cotton $5.00 case delivered, Northern California.

Northern California—With exception of a few days when light rains fell over most of the area the weather has been fair and additional rain is badly needed to promote plant growth. Bees in the valley areas have adequate supplies of honey and pollen. In the mountain areas the bee population is light and pollen supplies are also light, but colonies seem to be heavy with honey dew. Manzanita buds are dropping off badly from lack of water, and mustard and star thistle plants are also drying up. Trading has been light, with dealers buying relatively small lots of honey. The darker grades of honey are holding about steady but the lighter grades are firm to stronger. Sales by beekeepers in ton lots or more at Northern California delivery points—per lb. follow: Star thistle, extra light amber 4¾-5c, few 4½c, extra light amber to white 5-5½c per lb.; extra light amber alfalfa 4½-4¾c per lb. 1 lot 5c per lb.; mixed flowers, light amber 3¾-4c, some 4¼-4½c, amber 3¼-3½c. Honey dew 3¾c per lb.; light amber alfalfa 4c per lb.

The market for beeswax has been steady at mostly 20c per lb. at Central and Northern California delivery points, few offers reported at 22c per lb.

Pacific Northwest: West of Cascades—Temperatures during the past two weeks have continued above normal, with no freezing temperatures or snow that has remained on the ground even in the high altitude. Western dandelions are still in bloom and on a number of days bees have been able to make short flights. While the market has been rather dull there appears to be a tendency toward higher prices. Sales reported light amber clover-vetch 4½c per lb. delivered Portland; light amber fireweed 5½-6c per lb. delivered. Seattle, 5-5½c delivered Portland for 1939 crop and 6c per lb. for 1938 crop. The beeswax market has been steady with dealers paying 19c per lb. cash, 20c in trade to beekeepers.

East of Cascades—Temperatures have been above normal here also, and bees are reported to be in good condition for winter, with little recent opportunity for flight. White sweetclover-alfalfa has sold at 5½-6c per lb. delivered Seattle; extra light amber 4¼-4½c per lb. delivered Portland, 4½c per lb. for light amber delivered Portland. Comb honey is steady to firm with prices ranging for white sweetclover-alfalfa, fancy 12 oz. $2.75-2.85; choice 12 oz. $2.50, 10 oz. $2.25-2.40, commercial 9 oz. $2.00 per 24 section case.

Intermountain Region—Honey continues to move slowly but the market is firm and most lots of honey seem to be in fully steady hands. For example, occasional beekeepers are still holding 1938 crop honey in the hope that the market will strengthen. Ton lots or more of white to water white sweetclover-alfalfa have sold recently at 5-5½c per lb., some 4½-4¾c per lb.; 60's 5½-7½c per lb.; small pails 6-7½c per lb., few 8-9c per lb.; light amber, ton lots, some uncased 4c per lb., small pails 5½c per lb.; bulk comb, small pails 8-9c per lb. Sales of section comb delivered Los Angeles basis, unwrapped, Fancy, 12-14 oz. $3.00, choice, 10-12 oz. $2.75; commercial 8-9 oz. $1.50-2.00 per case. Beeswax, 19-22c per lb.

Colorado—Cooler weather has been keeping bees in the hives but they appear to be in good condition in all sections. It has been extremely dry and much more rain is needed for next year's plants. Beekeepers are rather uncertain regarding the prospects for next year's crop because of the lack of moisture.

Wyoming—Soil moisture has been largely exhausted except for occasional sections where irrigation was possible. The temperatures were well above normal until toward the close of the period and bees were able to fly occasionally.

Montana—Temperatures have been mild enough so that bees have been able to fly frequently. No recent precipitation reported, and little snow that fell earlier has disappeared. Beekeepers are hoping for substantial rain or snow to take care of next year's irrigation needs.

Idaho—The weather has continued warm and dry and bees have been able to fly almost every day. Most colonies that are to be packed

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have been taken care of for the winter. Some reports indicate that stores are less than anticipated and that beekeepers fear winter losses may be substantial if the weather proves too severe.

UTAH—Bees have been able to fly almost every day and have been gathering pollen from fall dandelions. Late broodrearing has been the result, with a heavy consumption of stores. Feeding has been done in most cases where it has been necessary.

SUMMARY—Unseasonably high temperatures have again been general over the entire country except that during the latter week temperatures in the East ranged below normal. Rainfall has been light and has occurred primarily in the east-central and southern portions of the country. Over wide areas much more precipitation will be necessary if honey plants are to carry through the winter satisfactorily. The long period of warm weather which has permitted bees to fly in nearly all of the country has resulted in heavier consumption of stores than anticipated, and many beekeepers are becoming uncertain as to whether their bees will come through the winter without being fed. So far, however, feeding has been done principally by commercial beekeepers. Brood-rearing continued late and colonies are approaching winter with sufficient young bees.

Honey is still selling rather slowly, though inquiries appear to have been heavier during this period in a number of important areas. Local sales have been less brisk than normal. Prices show little change, though as a rule there appears to be an under-current of slightly increased strength. Often beekeepers are holding their honey in hope that market prices may strengthen as the season advances. If this strengthening occurs it will be primarily because of improved business conditions generally rather than to export demand because honey is still one of the food products that is considered by European countries as either a contraband of war or one which requires a separate license for each import transaction. Practically no import licenses have so far been granted, and American beekeepers will, it seems, have to depend upon American markets for the disposition of the present crop. Beeswax has weakened somewhat in the large consuming markets, but is still firm in interior producing areas.

Monthly Report of Honey Producers

Early in December, 1939, we sent the following questions to honey producers: What per cent of the honey produced in your locality has already left the hands of the producers? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots, (carload or less) in your locality during the past month for (a) Extracted honey, per pound? (b) Comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in per cent. 7. What is your estimate of prospects for a normal honey crop in 1939, considering the present condition of the bees and honey plants? Give answer in per cent of average crops for your locality.

State	Name	1. Per cent Sold	2. Large Ex.	2. Lots Comb	3. To Grocers Ex.	3. Comb	4. To Consumers Ex.	4. Comb	5. Movement	6. Colo. to be Wint.	7. 1940 Prospects
SE-Ala.	(H. C. Short)						.60	.25	Fair	100	100
S-Ala.	(J. C. Dickman)	90			.40		.50		Fair	100	100
B. C.	(A. W. Finlay)	75	.09		.65		.85		Good	100	
S-Calif.	(L. L. Andrews)	99	.05 7/8				.59	.18	Fair	95	65
C-Calif.	(Davis Bros.)	80	.05 1/4						Slow	150	50
SE-Colo.	(Otis E. Adcock)	50	.04 3/4	2.75	.40	3.50	.50	.20	Slow	80	
E-Conn.	(Allen Latham)	50			.75	5.00	1.00	.28	Fair	100	100
S-Fla.	(C. C. Cook)		.03 1/2		.35		.50		Slow	120	100
C-Fla.	(Harry Hewitt)	50	.04		.33		.49		Fair	100	100
SE-Ga.	(J. J. Wilder)	70			.50		.60		Slow	115	100
S-Ills.	(Carl E. Killion)	75	.06 3/8		48	3.50	.60	.18	Fair	100	85
NW-Ind.	(E. S. Miller)	50			.50	3.00	.65	.15	Fair	90	90
N-Me.	(O. B. Griffin)	75				4.75		.28	Slow	100	100
C-Md.	(S. G. Crocker)	80			.60	3.60	.75	.25	Slow	100	80
N-Mich.	(Ira D. Bartlett)	50					.49	.17	Slow	100	100
E-Mich.	(L. S. Griggs)	50	.05 1/2		.35	2.75	.50	.19	Fair	110	100
E-Minn.	(Francis Jager)	100	.06 1/2				.39			100	90
E-Minn.	(Floyd W. Ray)	75	.05	3.00	.40	3.50	.49	.18	Slow	100	90
W-Minn.	(B. L. Morehouse)	50	.05		.42		.55	.20	Fair	105	85
C-Nebr.	(J. H. Wagner)	35	.06	2.40	.38	3.00	.43	.15	Slow	90	50
W-Nev.	(Mrs. E. G. Norton)	50	.04 3/4	2.38			.40			80	
W-Nev.	(Geo. G. Schweis)	50			.30	3.25	.45	.20	Slow	100	50
W-N. M.	(C. A. Baltzley)	75		3.50	.50	3.75	.73	.20	Fair	80	80
NW-N. Y.	(Geo. B. Howe)	50	.06	3.60	.50	4.00	.65	.20	Fair	100	50
C-N. Y.	(F. W. Lesser)	70	.06 1/2	3.50	.48	4.20			Rapid	100	75
SE-N. C.	(W. J. Martin)	90	.06 1/4		.60		.80	.20	Fair	100	100
C-Ohio	(R. D. Hiatt)	30			.47	3.60	.60	.19	Fair	115	80
NC-Okla.	(C. F. Stiles)	65			.45	3.60	.63	.18	Fair	90	75
W-Ore.	(H. A. Scullen)	40			.40		.50	.17	Slow	100	100
W-S. C.	(E. S. Prevost)	90					.15		Fair	100	100
NE-S. D.	(L. A. Syverud)				.39	2.50	.44	.15	Fair	110	75
SE-S. D.	(J. F. Norgren)	45	.05		.42	2.80	.54	.15	Fair	110	95
C-Tenn.	(J. M. Buchanan)	95					.75	.20	Fair	100	90
E-Tenn.	(W. L. Walling)	90			.75		1.00		Fair	90	75
S-Texas	(J. N. Mayes)	90	.05 1/2		.30				Fair	80	75
S-Texas	(H. B. Parks)	90			.48		.60		Fair	94	85
N-Utah	(W. H. Hendricks)	75			.40		.47		Slow		60
S-Va.	(T. C. Asher)	80			.50	3.50	.70	.20	Fair	95	100
SE-Wisc.	(N. E. France)	75	.05				.45	.15	Fair	90	75

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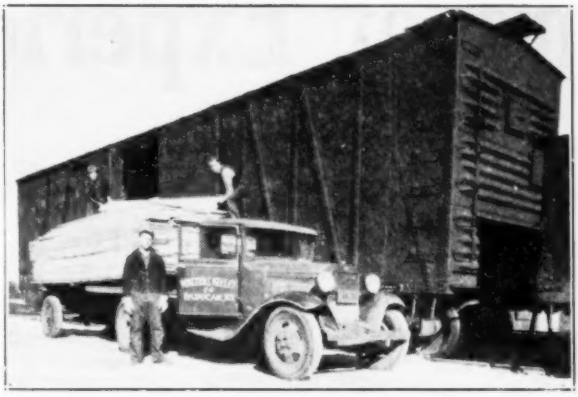

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Vol. 68
No. 1

Gleanings in Bee Culture

January
1940

Temperature of the Winter Cluster

E. R. Root

How a Colony Lives During Very Cold Weather

[The following article is taken from the new 1940 edition of the A B C and X Y Z of Bee Culture.]

Up to the year 1911 various erroneous notions were current concerning the temperature of the winter cluster of bees. Some authorities stated that the internal temperature of a colony in winter was blood heat; that when the cluster was broken into, no matter how cold the day, the individual members would rush out, apparently just as active as at any time during the summer. Others held that bees went into a winter sleep, somewhat analogous to a condition of semi-hibernation or even perfect hibernation.

Still others maintained that bees during winter could and do go into a state approximating death; that they had broken into their clusters and found them lifeless; had carried them into the house and put them near a stove, and found that they soon revived and flew about the room as lively as ever. From this they argued that bees were like ants in that they went into a state of perfect hibernation. This, of course, is a mistake.

The fact is, there is truth in all of these assertions. The different observers had taken the temperature of the clusters at different times during the winter and under different conditions. The temperature of the honeybee cluster varies all the way, according to conditions, from 32 F., which would shortly result in death, to 97, which would be summer temperature. Whenever the cluster is chilled through, so that each individual member of it is stiff and cold, and apparently lifeless, it will soon die unless the weather becomes warmer. If one were to dig into such a brood nest, and find such a condition, he would naturally argue that bees hibernate like ants and flies.

A few beekeepers in the early days argued in favor of reducing the surrounding temperature until the bees were chilled through, because they said that in such a state they would consume almost no stores. Unfortunately for this argument, experience shows that in a chilled condition bees can not live more than a week or ten days. Any time within that period they may or may not be revived by placing them in a warm room. If a cluster is chilled clear through in an outdoor colony, and it warms up outside enough so that the internal temperature of the hive reaches between 60 and 70, the bees may revive, move to the portion of the brood-nest where their stores are, and may, if the winter is not too severe from that time on, live through.

Government Tests on Winter Cluster Temperature

It was not until the Bureau of Entomology, Washington, D. C., attacked this problem in 1912, 1913, and 1914 that the matter began to be cleared up. Dr. Burton N. Gates, then Apicultural Assistant in the Bureau of Entomology, Washington, D. C., made a series of experiments in determining the temperature of a colony in winter. His investigations are described in Bulletin 96, U. S. Department of Agriculture. These experiments were carried on further by Dr. E. F. Phillips, at the time Apicultural Investigator in the Bureau, and by Geo. S. Demuth, and recorded in Bulletin No. 93, Department of

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Agriculture. Dr. Gates worked with mercurial thermometers, but because of the limitations of these instruments he was unable to carry his work to a finish.

Phillips and Demuth did their work in a constant-temperature room at the University of Pennsylvania, Philadelphia, during the winters of 1912 and 1913, and 1913 and 1914. Several colonies variously prepared were placed in the constant-temperature room, where the temperature was held by means of coils of pipes containing a brine solution—much the same apparatus that is used in cold-storage plants. On the roof of the building containing this room there were placed several colonies of bees where the conditions of outdoor-wintered colonies could be observed. A series of electric thermometers or "thermo couples" were placed in one of these colonies on the roof and likewise in the colonies in the constant-temperature room before mentioned. By an elaborate system of wiring, these electric thermometers were connected to an observation room in the building, entirely separate and distinct from the constant-temperature room.

They found that the temperature within the cluster is far from being uniform, as is generally supposed by beekeepers. "At the temperature at which other insects become less active (begin hibernation) the honeybee becomes more active, and generates heat—in some cases until the temperature within the cluster is as high as that of the brood-nest in summer." During the fore part of the readings in November and December the marginal temperature of the cluster of this outside colony had a tendency to drop, as the outside went down, until the temperature of the surface of the cluster reached 57 F. At that point a reaction took place; that is, the generation of heat began, and from this point it began to rise in spite of the fact that the outside temperature continued to drop. The cluster heat continued to rise until the center of it registered nearly 90 degrees. After the coldest outside temperature was reached, the outer air began to get warmer, and simultaneously the temperature of the cluster began to sag.

Dr. Gates discovered a similar inverse ratio; but he did not find the exact point at which the marginal temperature ceased to drop with that of the outside. Dr. Phillips and Mr. Demuth decided that this point is 57 F. When the colony is without brood, and the bees are not flying, the bees generate practically no heat until the coolest point among the bees reaches a temperature of 57 F. "At this point the bees begin to form a compact cluster; and if the temperature of the air surrounding them continues to drop, they begin to generate heat." Between 57 and 69 F. the bees do not do much in the way of heat generation.

During these experiments it developed that there can be, and actually is, activity inside of a cluster of bees during winter. When the temperature goes down and the outside temperature surounding the hive is dropping, the bees, Phillips and Demuth inferred, can raise the temperature of the cluster. This activity may consist of a few bees tugging at each other, moving their bodies back and forth, or actually fanning with their wings. One or more bees may set up an active fanning inside the cluster during the dead of winter. Bees apparently fan to cool themselves in summer and to warm themselves in winter, paradoxical as this may seem.*

Later Work on the Temperatures of the Winter Cluster

A series of years elapsed after the work of Phillips and Demuth in 1914 before other investigators made an attempt to prove or disprove the exact point of temperature when bees begin to become active and form the cluster. Phillips and Demuth placed it at 57° F. In 1920 and from then on for a series of years, Professor H. F. Wilson, entomologist and instructor in beekeeping at the University of Wisconsin, and his then student, V. G. Milum, now of the University of Illinois, conducted a series of experiments in testing out winter packing and its effect on the temperature of winter clusters under various con-

*Phillips and Demuth came to the conclusion that this activity was for the purpose of raising the temperature of the cluster. Apparently the opinion of some other scientists, such as Wilson, Milum, Farrar and Corkins, based on later work supports the thesis that the temperature of the cluster is maintained more by the expansion and contraction of the cluster according as the outside temperature rises and falls. It is proven that when there is a sudden drop to zero weather or below, that the cluster of a good colony will contract down to the size of a small compass and when outside temperature rises the cluster will expand. It is probable that both factors, expansion and activity control the temperature of the cluster. More work is needed to draw the line sharply.

ditions. They followed the methods of Phillips and Demuth in the use of electrical thermo-couples or electric thermometers. Their investigations very largely correlated and confirmed the work of Phillips and Demuth in the results of temperature changes. All this is recorded in an elaborate bulletin, No. 75, issued in February, 1927, by the Agricultural Experiment Station of the University of Wisconsin. In this bulletin, on page 35, we find this:

> The temperatures in the area occupied by the cluster vary from approximately 45° F. up to 89° and the decline at the edge of the cluster is very sharp. Outside the cluster, the thermo-couple readings vary not more than two or three degrees.

This would seem to imply that the temperature might go as low as 45° F. and which figure would be in agreement with the work of Hess, Himmer, Corkins and Farrar; but Milum, one of the co-authors of the bulletin above, named (No. 75), writes under date of Aug. 24, 1939, as follows:

> Regarding the temperature at which bees cluster I do not believe that our work disproved the theory that bees cluster at 57° F. In the graphs in the Bulletin, No. 75, and in some of my personal articles on the subject, thermometer readings or points above 57° F. were grouped and averaged as were those below 57° F., many of which were actually within the cluster, during the periods of cold weather. While the bees start to generate heat when the lowest point in the cluster reaches 57° F., during periods of cold weather, they are not always able to maintain all cluster points as high as 57° F.

No one, says Farrar, has recorded a **maximum temperature below 57°** in the active center of a normal broodless colony. The active center need not be the geometrical center. When the cluster temperature of a broodless colony falls to approximately 57° F. the bees begin to generate heat above the basal output although not all the bees will actually join the cluster at that temperature. As the outside temperature falls and a complete cluster is formed, a temperature in the active center is maintained sufficiently above 57° that heat will be conducted to the periphery sufficient to maintain a surface temperature between 43 and 46 degrees.

Within limits, the temperature in the center of the cluster, as shown by Phillips and Demuth, tends to increase as the external temperature decreases and vice versa. However, the colony's most effective means for maintaining a suitable temperature, continues Farrar, is by contracting the cluster as the external temperature decreases below 43 to 46°, thereby reducing the surface exposed to radiation and at the same time increasing the number of bees within to produce heat.

Conversely, as shown by Phillips and Demuth, a rise in the external temperature results in an expansion of the cluster. The bees, says Farrar, do not attempt to heat the hive space unoccupied by the cluster, and temperature well below freezing will occur there even in heavily insulated hives when outside temperatures go to zero or below. The formation of the cluster with its so-called insulating shell which may be 1 to 3 inches in depth and containing many more bees per square inch of comb surface than the more active heat producing center admirably fits the colony to maintain its own temperature environment. When the temperature in the center of the cluster approaches 93° (90-96°) egg laying will begin. If pollen is available within the cluster, brood rearing will result which is now recognized as both normal and desirable.

The chief function of hive insulation is apparently in slowing up the rate of temperature change allowing the cluster more time to contract and adjust itself in relation to its food reserve. The cluster will cover more solid combs of honey than formerly thought, so long as there is a small open center. It would appear that the space between two sets of combs in two story hives might be an aid to this active center. Excessive packing apparently prevents the cluster from expanding rapidly enough for the bees to benefit from short periods favorable for flight.

Milum, on this subject of cluster temperatures explains further that the maximum low cluster temperature is not 57° F., but rather it is the point that when it is reached somewhere within the cluster, the bees start to form a cluster, but this does not mean, he says, that all points of the cluster are always above that point. It is a starting point and not a maintenance point.

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(Continued on page 62)

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Attractive Packages Sell More Honey

C. O. A. Kramer

It Pays to Dress Up Honey Packages

In the spring of 1938 I fulfilled a lifelong ambition to own a few hives of bees. Previously I secured all the literature which I could secure on the subject. Then, at the proper time, I mailed my order down South for a couple of packages.

I had in readiness the necessary hives, frames fitted with reinforced foundation, feeders, etc., and, closely following instructions, had no difficulty in getting my bees off to a good start. Sweet clover being plentiful in my neighborhood, the bees not only filled up a full-depth super each, which I left on for a food chamber, but an additional full-depth super each, which I extracted.

We had plenty for our own use and I also filled a few dozen bottles of assorted shapes which I jokingly distributed to as many friends, telling them it was "Kramer's Personalized Honey from Contented Bees". To my surprise, I had quite a few calls for more of the same.

During 1939, I increased the size of my little apiary and when the harvest was over I had about a thousand pounds of very delicious honey. In the meantime I covered the highways and byways within a radius of 100 miles and wherever I saw a sign "Honey For Sale" I made inquiry as to prices, packages,etc. With one exception, most of the sellers were offering 5-lb. pails anywhere from 35c to 50c and in ordinary Mason jars of about 2-lb. capacity for 25c. In appearance it was anywhere from clear to muddy—mostly the latter.

I determined that I was going to get 25c a pound for my product and package it in the most tempting manner possible. After a careful survey I decided upon the "skep" style jar in the 1 and 2 pound size which I secured from a local dealer here in Chicago. I then designed a little label in two colors, having a sort of cross-hatch background in light yellow with the reading matter in dark brown.

I wanted a clear, sparkling product, so, after consulting the A B C guide I found that the thing to do was to heat the large 60-pound cans, two of which I placed in a wash-boiler at a time. After heating it slowly until it was almost like water I poured it through double thick cheesecloth, first dampened, of course, and then proceeded to bottle it while it was still hot.

As the jars were set upon the work-table, at first glance they didn't look so good. They were all full of little air bubbles. Then I decided to let the honey run into the jars against the side. Eureka! That practically eliminated the bubble question. Next, after I had two dozen jars filled I placed them up to their necks in the wash-boiler again for about half an hour; took them out and after carefully wiping, screwed the caps down tight. Next morning I eagerly looked them over. Crystal-clear, like sparkling old wine—a joy to behold.

Two-pound Jar Most Popular

The labels not as yet being ready, I distributed the jars to those who had asked for them previously and found that the 2-pound size was the one most sought after. One or two mentioned that it did not look like two pounds on account of the squat size of the "skep" jar. Then I determined to test the sales effect of different style jars.

I got a few of the tall round, also octagon shape and the wedge style modernistic, filled with the same clear product as the "skeps". By this time the labels were ready so they were neatly affixed in proper position, and, as an after-thought, born of the fact that a few of the lid edges were slightly sticky, I took some of the cellophane wrappers that I had bought for comb in sections but never used, and which happened to be in colors to harmonize with the label, and cut them in half with a shears so that they were perfectly square.

These wrappers have printed right in the center, the words "Eat Honey Today", which, when the wrapper is placed over the top and drawn down like a skirting and held in place with a small rubber band, makes the "Eat Honey Today" appear right in the center of the lid.

To the Tuesday Afternoon Bridge Club which appeared at the house that week, I submitted the assortment (all in the 2-pound size, by the way,) at 50c for the 2-pound jar. To my surprise, without exception, they all took the wedge-shape modernistic jar. Not satisfied, I again tried the experiment on a different group of women with identically the same results. So there was nothing to do but concentrate on the style package approved by all. The label, as you will note from the illustration, has the words "Pure Honey" in large type, the text in smaller type neatly arranged in the center, while the name and address, which is important, in type slightly smaller than that used in the heading.

The main thing is to maintain a tempting, attractive appearance in the package. Keep your product crystal-clear. If a little fleck of wax or foam sometimes appears in the jar it is promptly dumped back into the strainer again, the jar washed out, and carefully refilled. The jars are wiped with a damp cloth after being taken from the wash boiler, the labels carefully affixed in exact position (not crookedly), the cellophane top wrapping neatly placed so that the words "Eat Honey Today" is in the exact center of the lid, and I get a good price without quibble or argument.

River Forest, Ills.

A British Columbia Apiary

Mr. James McGavin of Vancouver, B. C., Canada, has made a success of his back-yard apiary.

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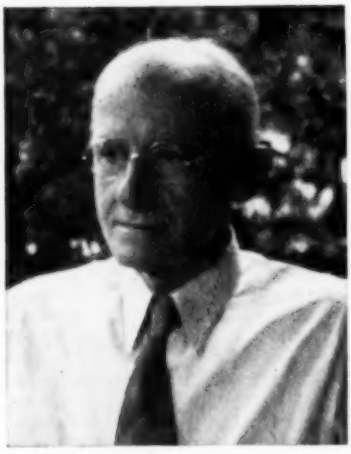
Statistics of Bees and Honey

Dr. S. A. Jones



Dr. S. A. Jones
Senior Agricultural Statistician, United States Department of Agriculture, Agricultural Marketing Service

[Editor's Note: Dr. Jones has been a member of the Crop Reporting Board of the U. S. Department of Agriculture for many years and is now Senior Agricultural Statistician in the Division of Agr'l. Statistics of the Agr'l. Marketing Service. This paper was read by Dr. Jones at the Sacramento meeting.]

Beekeeping is a business. Lots of beekeepers get fun out of it, but few commercial producers would or could stay in the business just for fun. Everyone needs to know his own business. Your business has two angles, production and marketing. Most bee men qualify in the first branch, but few are fully satisfied with their performance in the latter. They can more or less meet the natural conditions governing production, but the market conditions confuse and punish them.

One great need in solving the marketing problems of beekeepers as a class and as individuals is to know their business in respect to supply of honey, present and prospective. It is not enough to know the facts for your own apiary or neighborhood, or even your own State. You need them also for the entire country.

Few industries have changed more than this one during the past decade or two. In many places, production conditions are now much as they were then, but over large and important areas the picture has utterly changed, and these changes have altered the situation profoundly for the entire industry.

Twenty years ago, about 6 per cent of the surplus honey came from sweet clover. Ten years ago, about 20 per cent came from that source. The present proportion is unknown, but is probably between one-third and one-half of all surplus honey. While sweet clover is present and productive in most States, the bulk of this honey has come, during recent years, from the old white clover belt of the northeastern quarter of the United States. In that vast area, normally well watered and productive over almost its entire extent, stretching about 1,200 miles from the Missouri River at Omaha to the Atlantic Seaboard, and from the border states about 600 miles to the Canadian Border and beyond, the production of surplus honey from sweet clover is now the greatest factor in the United States honey supply situation.

Meanwhile, honey production in large sections of the Western Plains and inter-mountain areas has practically ceased, due mainly to the recurrent severe drouths.

Beekeepers need to know the extent and character of these changes, the shifts in production between regions, and the sources and extent of present production and supply. The consideration of this need brings us to the subject of this paper, "Statistics of Bees and Honey".

There are two main types of business statistics, commercial and governmental. Commercial statistics are those assembled by business men and agencies through their business connections or by paid investigators. Such information is for their personal use and after they have made use of it, may be made public or not, in whole or in part, as they may consider to their own interest. Public statistics of business are assembled by Government for the information of all elements of the industry, so that seller as well as buyer, consumer and handler, are benefitted through knowledge of the facts. The possession of such knowledge by all parties concerned assists in establishing a fair price and helps to move the product into consumption as rapidly and economically as possible.

Lack of such knowledge by all concerned, or disagreement concerning facts of supply, leads to slow marketing, to hesitant buying, and to low prices, because buyers under such conditions will only trade on the basis of a wide margin to cover the risk of unsettled prices. Public statistics of the business of agriculture, including honey production, are mostly issued by the Federal Government.

Government reports are also of two kinds. First, are the reports of the United States Census, taken every ten years and intended to cover all farms. In the past, unfortunately, these reports have omitted out-apiaries belonging to the commercial producers which at present supply the bulk of the honey that goes into commerce. The second class of Federal statistics of Agriculture are those issued by the Department of Agriculture. These latter were provided for in the original act creating that Department, with the purpose that producers might have dependable information on the volume of production of their crops and not be dependent upon the fragmentary and sometimes misleading news issued by private agencies. The basic law provided for the collection and publication of such statistics, and gradually through the years, on the petition of producers, funds have been provided for the preparation of statistics on cotton, grains, vegetables, fruits, various classes of livestock, milk, poultry, and a number of other items.

The statistics issued by the Department fall into three major groups. First, **annual** estimates of acreage of crops and numbers of livestock, with the production, utilization, prices, and value of production. Second, **seasonal** reports indicating degree of change from previous year, current growing conditions, prospective yields, etc. Third, reports of storage holdings, market receipts and prices, and related marketing information.

The work of the Division of Agricultural Statistics of the Agricultural Marketing Service covers the annual and seasonal production reports mentioned. In making these annual reports, the figures of the United States Census are commonly accepted as a starting point, being increased or decreased for subsequent years in line with the gain or loss shown on many thousands of sample farms as reported by its voluntary crop correspondents. As no satisfactory census basis has existed for bees and honey, no estimates of total annual production have been made, although for a term of years the honey market news reports carried a series of State estimates obtained from local authorities in the different States.

In 1913 the United States Department of Agriculture, recognizing the need by beekeepers for information on the size of the current crop of honey and for related information, to guide them in marketing their honey, began the publication of seasonal reports on bees and honey. These reports were based upon returns from a list of about 8,000 beekeepers. They showed, by States, the trend of numbers and production, and the extent to which conditions were favorable or otherwise, from month to month and from year to year. In May, they included data on number of colonies on hand, on winter loss of colonies as a percentage of the previous spring count, and on the condition of colonies and honey plants as a percentage of a normal spring condition. In July and September they covered the summer and fall conditions of the colonies, the condition of the nectar plants, and yields of surplus honey per colony as the season progressed. In December the total average yield for the season was reported, for honey and beeswax, along with the percentage of extracted, comb, and bulk honey, the percentage of the surplus marketed, prices received, fall number and conditon of colonies, supply of winter stores, and related information.

In 1925 the honey production inquiries and reports were discontinued owing to a drastic curtailment of funds appropriated for agricultural statistics. The seasonal reports for May, July, and September have not been replaced. Later, the December inquiry only was restored, but in a simplified form, covering spring and fall number of colonies, the quantity and form of honey produced and wax produced during the current year, and prices received for honey sold. The information obtained from this annual inquiry was not published but was used to assist in the preparation of annual estimates of farm income from all products. Fortunately, at the time that it was

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necessary to discontinue these statistical reports on honey production, a series of market reports on honey was developed. These reports included comments and general information relating to the production situation in different States and regions, which has been of very great help to the industry.

The Agricultural Marketing Service has now decided to establish a regular annual Government estimate of numbers of colonies and production of honey in each State, based upon a canvass of a sufficient number of beekeepers in each State to insure dependability. The inauguration of this report is contingent upon first securing dependable information upon absolute total number of colonies and total production of honey. Such information can only be had through the medium of an adequate census inquiry. The Census Bureau has agreed to undertake next year an inquiry on a new and more comprehensive basis, to supply a more complete record of the industry.

In view of the prospect for obtaining such needed basic facts, the Agricultural Marketing Service has during the past season reviewed the returns of its honeybee reporters covering the years 1919 to date, a period of twenty years. The record has been charted for the number of colonies and production of honey, and we will be prepared to issue a summary of the annual number of colonies and production of honey by States for the entire period since 1919 as promptly as the new census figures become available.

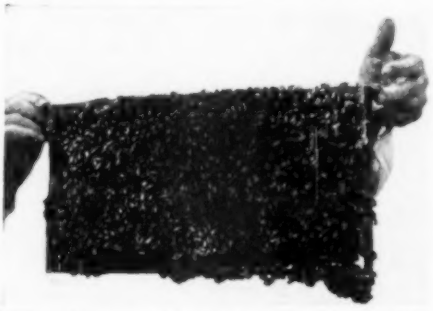
The census inquiry next year will ask the farmer: (1) Number of hives of bees kept on his farm but belonging to persons living elsewhere, (2) number of hives of bees owned by him on his farm, or elsewhere but not on another farm, i.e., kept by him in swamps, deserts, hills, or other non-farm tracts of land, and (3) number of pounds of honey produced by his bees in 1939.

The instructions to the census enumerators will direct that, when they find or learn of bees belonging to other persons than a farmer and such non-farm owner is understood to own in all 30 or more hives of bees, a report shall be obtained from such owner covering all of his bees and honey, provided they produced in 1939 products to the value of $250 or more. This provision, if followed, should obtain a record for most of the commercial beekeepers who maintain out-apiaries on farms, and may with reasonable effort be made to cover a large proportion of those with out-apiaries kept elsewhere than on farms. The instructions to enumerators make appropriate provision to avoid duplication.

In order to make the census on bees and honey as complete as possible, it is incumbent upon all beekeepers and those concerned in other ways with honey production to cooperate with the Census Bureau and its enumerators. Beekeepers should call the attention of the enumerator to their own bees and should give him also the names and location of other beekeepers, especially of commercial beekeepers located in towns, who might otherwise be overlooked. They should urge their local enumerators to get as complete an accounting of bees and honey as possible. State honeybee inspectors, producers' associations, etc., should cooperate by furnishing for the Census Bureau lists as complete as possible of all commercial beekeepers so that it may be in a position to check the work of its enumerators.

The Agricultural Marketing Service would then be in a position to reestablish current honey production reports, in order to keep the beekeeper more fully informed as the season progresses of conditions existing in apiary and field, of the prospective production of honey in the different sections, and of related items of needed information.

A Powerful Colony



When frames of bees such as this from Drake Gardens, East Brookfield, Mass., can be taken from a hive, one may feel assured of a honey crop.

Conventions of the West Coast

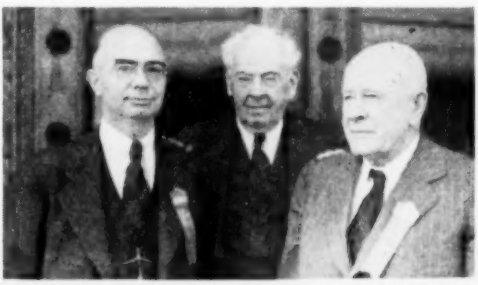
E. R. Root

The meetings held in the Northwest on November 2, 3 and 4, in the states of Oregon, Washington, and Idaho, while lacking in attendance were more than compensated by the quality of the papers and the discussions that followed. The National Beekeepers' Conference referred to on page 758 of our last issue was equally of high order. A formal report of any bee meeting whether national or local is usually prosaic and the more so when the talks or papers are of exceptional merit. To attempt to make a brief of these that will be interesting, is difficult, if not impossible, and I shall not attempt it especially so as no brief can do justice to the subject or the speaker.

For the present at least, we have to content ourselves with a few pictures of the personnel so far as I could catch them on the fly and what they stand for. Some of the papers of which we have been able to obtain copies will be published later. One was given in our last issue by Harold J. Clay of the Marketing Service, Washington, D. C., page 733.

If there is any man in the great Northwest with its different and new problems that deserves the title of teacher, preacher, leader, and scientist in bee lore, it is the very modest Dr. H. A. Scullen, Associate entomologist at Oregon State College at Corvallis. Although generally in the background, it was evident that he was a moving spirit at the conventions held at Walla Walla, and at Portland, Oregon. His class in bee culture was very much in evidence at the night meeting on November 4, at Portland. The writer never met a more responsive crowd.

At the joint meeting the special features of the Washington State Honey Act was discussed by R. E. White, Supervisor of the Division of Foods and Drugs. This law provides that it shall be unlawful to deliver or offer for sale extracted honey in Washington in containers that are not conspicuously marked with the name and address of the producer or distributor, the net weight, and the grade of the honey. There must also be placed on it a Washington State seal, the cost of which shall be 1 mill for 8 oz.; 2 mills from 9 to 16 oz., and over 16 oz. a net charge of 2 mills per pound. The proceeds from the sale of such seals shall be used to defray the expenses of this Act and the administration of the foulbrood law. Mr. D. B. Bradshaw of Wendell,



Above, Prof. H. A. Scullen. Upper right, Harold J. Clay, Cary W. Hartman, and Frank Buchanan. Right, E. J. Eckert and H. M. Krebs.

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Idaho, in a vigorous address, assailed this Act as a deterrent in the sale of honey both in and out of the State.

Gleanings will take no sides in any such discussion but will allow space for both sides to state their case. It is evident that the beekeepers of Washington State are strong for the law on the ground that all honey offered for sale (except at roadside stands) shall be properly graded and marked. The law is also furnishing the funds for the enforcement of the Washington Foulbrood Law.

At the close of the Walla Walla and Portland meetings Mr. W. D. Haskell of Portland, President of the Oregon State Beekeepers' Association, and Mr. H. G. Moulton, Vice-President of the Association, drove a party of us over the lumber districts of Oregon.

The National Beekeepers' Conference

The two outstanding leaders at this great meeting were unquestionably Dr. J. E. Eckert of the University of California, Davis, and State Bee Inspector, H. M. Krebs, of Sacramento.

The smoothly working program that clicked like clockwork, the names of the speakers both State and National, the quality of the papers and talks, all testify to their untiring work and planning. I have no hesitation in saying that this was the most carefully planned National meeting we have ever attended. The echoes of this meeting will go down in history as one of the great meetings—not in attendance but in the quality of the papers and the standing of the speakers. Gleanings hopes to give a number of these in full.

The Grand Old Man of California

Practically all of the leaders of a generation ago have passed on to the Great Beyond. There is one of the old veterans that is still left, and that is Cary W. Hartman of Oakland, a contemporary of Dr. C. C. Miller, Chas. Dadant, C. P. Dadant, and A. I. Root.

At the annual banquet on the night of November 8, Mr. Hartman was presented with a large cake in the form of a beehive. Taken by surprise his response was as beautiful as it was appropriate. The presentation speech was made by the toastmaster, Mr. Roy Bishop.

Mr. Hartman gave one of the best analysis of the factors that control the price of honey that was ever given. Frank Buchanan is one of the outstanding personalities of California. He is a natural after-dinner speaker. His fund of humor at the banquet was one of the high spots of the occasion. He is perhaps best known from the high quality of his honey which brings a price above the general level. No one can accuse him of price-cutting. If more beekeepers would compete on quality and less on price it would be better.

Left to right, W. D. Haskell, H. G. Moulton, M. S. Stone, G. P. Walton, and Harold J. Clay.

I Hereby Resolve

To Use a Little Honey In a Lot of Things

Mrs. Benj. Nielsen

How about time out for a piece of honey orange gingerb

In just a few more days we shall have a brand new year. Have you made any resolutions? Do make just this one, even if you do not make any more; resolve to: Use a little honey in a lot of things. Then keep that resolution faithfully! If beekeepers and beekeepers' wives would make and keep that one resolution what it would do to surplus stocks of honey, to say nothing of the added dividends of better health and a general feeling of well being! You will find it one of the easiest and most profitable resolutions to keep that you ever made.

We homemakers, in no small measure, hold the health, happiness and ultimate success of our loved ones in our hands. Fortunate indeed are we honey producers in having right at hand a pure, simple and health-giving ally in honey. Remember—it is the daily use of even small amounts of honey, rather than the once-in-a-while "splurge" of honey cookery that pays big health dividends.

This is the open season on parties, bake sales, and general entertaining. Do not pass up these golden opportunities to interest the ladies in the use of honey in cooking. Then have your recipes ready; there is no better way to "spread" the use of honey than through the giving or exchanging of good recipes. The proof of the pudding—be it honey pudding or otherwise—is in the eating—and a good recipe to back up a sample test is worth a thousand words of urging.

To start the day off right, for that mid-morning fag and a grand afternoon "pick-me-up" try this: Squeeze the juice of one orange and one-half lemon into a glass, add two to three teaspoons of honey and fill the glass with boiling water. Of course, you will use Nature's finest sweet on your cereals and fruits and in your coffee, cocoa, and tea. Do not overdo the sweetening, especially if you are just beginning the use of honey.

When "menu blues" are diagnosed, more likely than not, you will find that vegetables are the chief offenders. Have you tried honey to perk up these essential vitamin and mineral laden foods? Do! Honey intensifies bland flavors and brings out hidden ones. It really does things for cooked or canned vegetables that seem a bit flat and tasteless. Carrots, scrubbed, sliced paper thin and cooked in little or no water, then slightly salted and drizzled with honey (about a teaspoon to each cup) and run through a ricer really make kitchen news. The addition of a tablespoon of honey to a No. 2 can of tomatoes is a trick worth trying; add salt and be generous with butter or onions or both. Honey is good for that flat, insipid taste so often found in canned beans.

Before passing on to concrete examples to satisfy inner cravings, here's a hint or two worth passing on:

Winter smoke, dry air, biting winds and too much indoor atmosphere play havoc with one's complexion. A wrinkle or two about the eyes, an inclination to puffiness, lines from nose to mouth, or perhaps the skin looks dry and lifeless. A honey face mask is the answer—a preparation to be spread on the face and allowed to remain on until thoroughly dry. Twenty minutes is the minimum time, 35 minutes better, and an hour ideal. There's no better way to cleanse, freshen and invigorate the skin, besides affording an opportunity to relax. Indeed relaxation is part of the treatment. If you can do your relaxing in a tub of hot water, the while you are reading a good story, that's perfect—you will feel like a new person.

First cleanse your face thoroughly with a good cleansing cream, then apply a warm towel to the face, to open the pores. Dry. Then spread on the mask with finger tips or brush being sure to carry it down under the chin and preferably over the neck as well; avoid getting it into eyebrows or eyelashes, as in drying it would glue them together. A shav-

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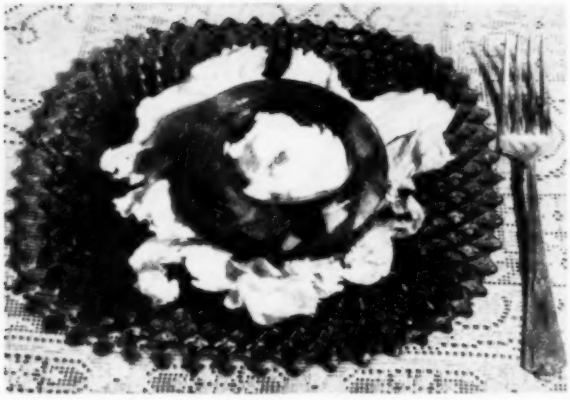

You will like the unusually good flavor of cranberry salad ring

ing brush is most convenient in the spreading process—but do be sure to wash away all traces from the brush and put it back exactly where you found it. Haven't you noticed that menfolks seem to be decidedly "touchy" about their shaving equipment? I'd hate to have the combined wrath of the beekeeping fraternity visited upon mine head, just because I made that helpful suggestion.

To make the paste: Combine one ounce of honey, 15 drops of tincture of benzoin (obtainable at drug stores) the white of an egg, and sufficient ground barley to make a spreadable paste. Fine oatmeal—not rolled oats, may be used. Do not beat the egg white; it serves as a binder for the other ingredients. When ready to remove the mask, wash your face in warm soapy water until every trace of the mask has been removed; rinse well in warm, cool, then cold water. Apply a little face cream lightly, do not rub it in.

This mask may be applied at night if time cannot be found during the day. To protect bedclothes, cut two pieces of cheesecloth, of a size to cover your face, cutting squares for eyes and nose; then attach strings so the squares may be tied on securely. You may wish to wear a cheesecloth mask even in the daytime—for one is anything but beautiful while the mask is drying.

If you would avoid those too flat seams and shiny spots when pressing woolen materials let a beeswax press cloth come to your aid. Simply fold one yard of heavy drill or canvas material through the middle, the width of the cloth; stitch sides together. Use a piece of beeswax, about the size of an egg, and with a medium hot iron, melt and spread the beeswax slowly and evenly until as much of it as possible is absorbed by the cloth. To use, place on garment beeswax side up, dampen evenly with a sponge and press with a hot iron. The steam passing through the beeswax cloth gives a firm press to materials, contributing much to obtaining and maintaining that coveted well-groomed look.

And do try these recipes to aid you in keeping that resolution!

Cranberry Salad Ring

Cook one cup of cranberries in one cup of water until the cranberries stop popping. Meanwhile dissolve two tablespoons of Knox Gelatine in one-fourth cup of cold water. Add to the hot cranberry mixture. Allow to cool partially, then stir in one-third cup of honey and a few grains of salt, two tablespoons of lemon juice, one-half cup of pineapple juice (unsweetened), ½ cup orange juice. When the mixture begins to thicken, add one cup of finely diced apple and ½ cup crushed pineapple. Pour into one large or several individual ring molds. Chill thoroughly. Unmold on crisp lettuce cups and serve with cooked honey salad dressing.

Swedish Ham Balls

One-half pound ground smoked ham, ¾ pound ground fresh pork, ⅔ cup uncooked oats, 2 tablespoons vinegar, ½ cup milk, ⅓ cup honey, 1 beaten egg, 2 tablespoons water and ½ teaspoon dry mustard.

Combine the ground meats with the oats. Add the beaten egg and milk and mix thoroughly. Shape into small balls and place in a shallow baking dish. Combine the remaining ingredients and pour over the meat balls. Bake in a slow oven for about

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one hour, basting frequently with the sauce.

Honey Orange Gingerbread

One-half cup butter, ½ cup honey, ½ cup sugar, 2 eggs, ½ cup of buttermilk, 1 teaspoon baking soda, 1 tablespoon orange extract, 2 cups sifted flour, ½ teaspoon salt and ½ teaspoon ginger.

Cream the butter, working honey and sugar in gradually; cream until light and fluffy. Stir in the well-beaten eggs. Sift flour, measure and resift with soda, salt and ginger. Add alternately with the buttermilk to the creamed mixture. Stir in extract and blend thoroughly. Pour batter into well-oiled shallow pans. Bake 35 to 45 minutes in a moderate oven, 350 degrees F. For variety a half-cup of pecan nutmeats, finely chopped, may be added to the batter just before pouring into the pans for baking. Serve with honey-sweetened whipped cream and a sprinkling of freshly grated orange peel.

Honey-Date-Nut Bread

One cup of dates, pitted, 1 cup boiling water, 2 tablespoons of butter, ¾ cup of honey, 1 egg, 1½ cups sifted flour, 1 cup nutmeats, chopped, ¼ teaspoon salt and 2 teaspoons of baking powder.

Cook the dates in boiling water until the mixture is thick. Cool. Cream the butter and honey together; add well beaten egg, the date mixture and the nutmeats. Sift flour, measure and sift again with salt and baking powder. Add to first mixture and beat well. Pour into a well-oiled loaf pan, the bottom of which has been lined with wax paper. Bake in a moderately slow oven, 325 degrees F., for one hour and twenty minutes. It is well to let this age at least a day or two before using. Good just spread with butter, and tops with the following:

Honey-Apricot-Ginger Spread

Wash one-half cup of dried apricots, cover with cold water and cook slowly, over a low flame, until fruit is soft. Run through a sieve, sweeten to taste with honey and cook again until thick as jam. Cool. Meanwhile, run one-fourth cup preserved ginger and one-third cup pecan nutmeats through a food chopper. Add to apricots. Spread on buttered bread.

Honey Baked Limas

Three cups cooked dried lima beans ½ teaspoon salt, 1½ tablespoons butter, 3 tablespoons honey, ¼ cup hot water, 3 strips of bacon and 6 marshmallows.

Place the cooked lima beans in a buttered casserole dish, add the hot water and stir in the salt, butter and honey. Bake in moderate oven, 350 degrees for about 20 minutes, or until heated thoroughly. Then place bacon strips, fried until crisp, over the top, dot with marshmallows and place under a broiler flame until toasted a golden brown.

Deep Dish Apple Pie

Four cups sliced apples, ½ cup honey, ¼ teaspoon salt, ½ teaspoon cinnamon and 1 tablespoon butter.

Place apples in a buttered casserole, sprinkle with the salt and cinnamon, drizzle with the honey and dot with butter. Cover with your favorite biscuit dough and bake in a slow oven until apples are tender, about 45 minutes.

Honey Date Custards

Four eggs, ⅛ teaspoon salt, 4 tablespoons of honey, 4 cups of milk, ¼ teaspoon nutmeg, 8 tablespoons honey (additional) and 8 tablespoons of chopped dates.

(Continued on page 62)

Honey baked beans are a delightful change from washday variety of beans

Winter Brood Rearing Unprofitable

C. M. Isaacson

A Non-brood Rearing Colony will Emerge with a Sufficient Number of Bees to Build Up to Any Usable Level of Strength

Much has been written of late about the desirability of large pollen reserves, so that brood-rearing may go on during the winter months. Many writers have commented on the advisability and even necessity of this.

Now there is no question as to the value of these reserves for spring use; but I do wish to ask a question—or might I say, put a challenge to the proponents of the mid-winter brood-rearing idea. It is simply this; is it either necessary or profitable? I cannot see that it is essential—and I have not been convinced that it is profitable.

First, the arguments for the idea, which briefly, seem to be this:

That young emerging bees are needed to balance the loss of older bees during the winter;

That extremely strong spring colonies will result and are desirable;

And finally that these larger spring colonies will result in larger honey crops and more profit for the beekeeper.

Now to take up what I think are objections important enough to require answer: To begin with, in a colony in proper shape for winter, the population will consist in large measure of young bees. After the older bees die off, who are of little value anyway, the death rate in a properly wintered colony should be very small—so small that quickening the slow metabolism of the wintering bee by having it go through the labor of brood-rearing for replacement, would seem like walking a mile so as to ride a mile—you get the ride but get no real good out of it. The A B C and X Y Z of Bee Culture (1929 edition, page 790) is authority for the statement that a well wintered colony will have much less loss than one-sixth of its bees. There are **enough** bees; why wear these out to produce more?

Strong Colonies Reach Peak Too Early

That extremely strong spring colonies will result is probably true, at least in many cases (but not all), but it does not necessarily follow that this is desirable. There is reason to believe that a moderately strong colony will build up to just as high a honey flow level and is more likely to reach it at the proper time—just as the flow begins. We all know of colonies that reach their "peak" too quickly and are going downhill when the honey gathering starts. These very often store less than the bees that are just "coming up" when the main flow commences. Unless one plans to divide them, an extra strong spring colony really does need to be held back. Why then have them extremely large when a smaller spring colony will give results as well or better? That a small colony with a good queen (and without that good queen the strongest is helpless) **can** and **will** reach a very profitable storing strength is proven by the large number of colonies started from a two or three pound package, which is probably only half the size of an **ordinary** well-wintered hive of bees. Ira Bartlett produces profitable crops from an entire apiary of package bees (Gleanings, May 1937, page 281).

The third contention is tied up with the first two, that this extra large number of early spring bees (resulting from winter brood rearing) are profitable to the beekeeper. In the first place, think of the extra honey that must be used. In the A B C of Bee Culture again, can be found the statement (page 792) that bees will go into a quiescent state in which they consume the minimum of stores. Why lose the advantage of this fact by inducing them to rear brood? Also on page 245 of the April, 1939, issue of Gleanings, Editor Deyell states that "about one comb of honey is needed to produce one comb of brood". Surely this ratio must be much greater in winter; would it not be a reasonable guess to assume double the amount to be needed? If as much as three combs of brood are produced during the

winter, this would mean 30 to 35 pounds **extra** beyond normal requirements. This must be replaced before a surplus can be started—a large amount for bees that are not necessary for building up and gather little or no honey themselves. Again you are taking the ride when you don't need to. For anyone will admit that there is a limit to colony size beyond which lessened morale will cancel the advantage of added bees. If package bees can approximate this strength, there is no reason to believe an **ordinary** wintered-over colony can not do likewise—proving that the extra spring bees are unnecessary.

Just to show that this is not all theory, I can quote from a few recent writers in Gleanings. In November, Chas. Hofmann, (page 720) says, "we have found that a colony which comes out strong but has no brood is always a better colony for the flow, and in this territory the flow **comes early**". (The emphasis is mine.) In the same issue, to quote Allen Latham (page 686), "to have early brood-rearing (in his locality) means rousing big colonies in May and starving colonies in early June". A little earlier, J. L. Byer (May, page 308) reports that hives arranged so that winter brood-rearing **cannot take place,** are without exception strongest in the spring and **always** ready for the clover flow. (The emphasis is again mine). And Mr. C. H. Pease is once quoted as stating (November 1936, page 655) that his colonies use only seven or eight pounds of honey over winter—proof that brood-rearing does not take place. His average crop is fifty per cent or so above that for his state. In my own apiary, I notice the same as quoted of Mr. Hofmann above—that the colony which has no brood at the beginning of spring is the best at honey flow time.

It is my contention then, that midwinter brood-rearing is not necessary because a non-brood-rearing colony will emerge with a **sufficient** number of bees to build up to any usable level of strength (with the possible exception of a case where division is wanted). It is not profitable because the unnecessary brood-rearing and resulting bees use up more honey with no appreciably greater amount gathered—even a possibility of less. And this is just a thought; is not the over-wintered rest of value to the queen—will not she "play out" quicker without it?

Middle River, Minn.

[This whole question hinges to a large extent on locality and the winter season.

In the milder climates or mild winters there will be more winter brood rearing than in the colder. It will not occur much before January 1st in any case and then in only a small area well within the cluster. As the winter progresses the size of the brood area may or may not increase much until March. The bees that emerge offset the loss of the old bees that die off during the winter.

My thousands of miles of travel have shown that there are only a few localities where the colonies will be too strong when the honey flow comes. In these there will always be quite a few colonies not up to par. Left as they are they will not get a pound of honey; but if given emerging brood from the over-strong they will get a crop.

Equalization of brood and bees can be practiced if there is some winter brood-rearing, supported by plenty of fresh pollen. Colonies too strong too early is not a fault but a blessing and this view is based on extensive travel and interviews recently with Todd and Farrar of the United States Field Laboratories.

Again, can we stop winter brood-rearing? It has been going on for centuries and we didn't know it. Nature knows what she wants and will get it if man doesn't interfere.

Don't forget this: Most colonies over the country are under par when the main crop comes. Winter brood-rearing helps to correct this.

Mr. Isaacson has given the best set of arguments I have seen against winter brood-rearing, but if he had recently been in contact with the U. S. Bee Culture Laboratories at Davis, Calif., and again at Madison, Wis., and, if too, he had talked to groups of beekeepers who have seen the new light, as I think I have, he might join with me in the saying of Josh Billings "What's the use of knowin' so much, when so much you know ain't so".

I include myself more in this saying than I do you, Mr. Isaacson, and I have been 50 years at the game.

This whole question will bear further discussion. It is not settled yet.—Senior Editor, or more exactly, E. R. Root, temporarily in California.

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Food and Development of the Worker and the Queen Honeybee

Mykola H. Haydak
University Farm, St. Paul, Minn.

(Continued from December)

In order to understand how varying degrees of nourishment affect the development of larvae, we have to study the structural changes which occur during the larval life of bees. Zander, Loschel and Meier (1916) made histological studies of the development of the sexual organs of the worker and queen. At the beginning of the larval life, up to the second day, the worker and the queen have about the same number of ovarioles. In further development, the number of ovarioles increases in the worker, but not to the same extent as in the queen. Up to the second day, there is a similarity in the size of the ovaries of the queen and worker. Afterwards, the size of the ovaries of the worker remains far behind that of the queen, in spite of the increase in the number of ovarioles. At the end of the larval period, the ovaries reach about the size of those of a three-days'-old queen larva.

Histological studies of Oertel (1930) showed also that in the worker "during metamorphosis the size of the ovaries and the number of ovarian tubules are diminished, but a few tubules remain and complete their development. Near the end of the larval period, the ovarian tissue, not including the remaining ovarian tubules, decrease in amount."

These histological findings are supported by the practical and scientific attempts to rear queens from worker larvae of different ages. Klein, (cited by Becker:—Zander and Becker, 1925), used worker larvae of different ages (½ a day to 6 days) for queen rearing, placing them in queen cells, from which queen larvae were removed, and letting the bees feed those added larvae. He obtained gradual transitional types from the worker to the queen, depending on what age of larvae he used. He also tried to rear in worker cells larvae taken from queen cells. He experienced some difficulties because older larvae could not be conveniently placed in worker cells or the workers removed them. He was successful with younger larvae, from which normal bees were produced. Later he tried again to work with the older queen larvae and in this case he succeeded in rearing two imagoes of which one was pure worker and the other, produced from still older queen larvae, which was sealed sooner than the first, resembled more a worker than a small queen, but had some characteristics of the queen too.

Becker (Zander and Becker, 1925) started queen rearing from ½ to 4 days old larvae. He sectioned the pupae and determined the differences in the structure and size of the mandibular and pharyngeal glands, ovaries, number of ovarioles and the size of spermatheca. He found that all the curves of development for different organs run, for a period of time, on the same height as for normally developing queens. Then all of them fall abruptly except the pharyngeal gland curve. The curve of the number of ovarioles of the right ovary of queen pupae reared from up to 3½ day old worker larvae stays around 150 ovarioles, while in those from older worker larvae sinks abruptly to the number of worker's type. The size of ovaries runs parallel to that of the number of ovarioles. Becker concluded that in worker larvae, between 3 and 3½ days old, there is inside of twelve hours a striking change of the structural pattern (Organisationsbild) of the queen into that of the worker.

What is the cause of such a change, and how can the final development of the worker and the queen type of the female bees be explained? Let us examine the effect of undernutrition on a growing animal. According to Jackson, (1934), "Inanition profoundly affects the reproductive tracts of both sexes." Due to these changes, "the endorcine function of the ovary is inhibited. In the young, inanition usually causes a variable degree of ovarian atrophy. Chronic underfeeding results in the retardation or repression of sexual development. The effects of protein deficiency are especially manifest in the young. The rate of growth can be regulated at will by varying the protein content of the diet. In the rat subjected to protein deficiency there

are remarkable dystrophic changes." In this case the ovaries are affected to a great extent. Haydak (1935, 1936) has established the fact that a protein rich food tends to increase the nitrogen content of the abdomens of bees produced. He did not investigate whether it was due to the greater stores of protein in the fat body, or that the ovaries of the emerging bees were also more developed. That the number of ovarioles in the worker varies greatly is a known fact. As high as 38 for both ovaries were counted, (Kozhevnikov, 1925). In the Czecho-slovakian Beeculture Institute, as high as fifty-nine ovarioles were found in a worker (personal communication).

That the effects of under-nutrition are likely to be the same for insects is evidenced from the following statement by Jackson: "Although the phenomena of inanition varies very greatly among different species and individuals, there are, nevertheless, certain features of general agreement. The similarity of effects is to be expected, since the changes are due ultimately to interference with the cell metabolism; and this metabolism is essentially the same in all living organisms." That the ovaries of worker bee larvae are retarded in their development is proved by the work of Meier, described previously. There is a change in the diet and in the type of feeding shortly before this retardation in the ovarian development occurs. We can assume that the delay in the development of ovaries is due to the restricted diet to which the older worker larvae are subjected in the later stadium of their growth.

Salt (1927) gives evidence from his own observations and from the literature that stylopization causes under-development of the ovaries of parasitized female bees. "In the insects with fixed amount of food for larvae (Andrena) the effects of stylopization are more pronounced, because larva can not increase its ration. In the bees whose larvae are fed during their development by bees, these effects are not so pronounced." In the former case there is a partial inanition which causes the same effects as in the vertebrates. Besides this internal change, there is an "alteration of the ordinary somatic and secondary sexual characters, the latter being or tending to be actual interchanges". These changes are more pronounced when stylopization starts in the earlier stages of life. The author concluded that "the effect of stylopization seems to be capable of explanation on the basis of an upset in the nutritional balance of the host which affects the reaction of the sexual hormones and produces inter-sexes".

Although there is an ample evidence (cited by Salt, 1927) that the development of the secondary sexual characteristics is independent of the sexual glands, nevertheless, the appearance of male characteristics in female with under-developed ovaries is an interesting phenomenon worthy of further investigation.

In case of the queen honeybee there is no inter-sexual change since both the worker and the queen belong to the same sex. There is only an intensification of the characters involved. If we keep in mind the effects of inanition on the development of growing animals, we can interpret the results of von Rhein investigation from a different angle. For rearing his worker pupae he used worker larvae of about 8 mg.—over 2 days of age—the most critical time in the development of bees. Majority of the pupae had quite a high number of ovarioles, but the size of the ovaries was much smaller than that of normal queen pupae. Probably these larvae were somewhat under-fed and this manifested in the under-development of the ovaries. This was still better shown when he reared pupae using worker larvae of over 3 days of age (41-152 mg.). The pupae, though heavier than normal, had in a vast majority of cases their ovaries under-developed which signifies that the effect of inanition in the hive progressed already to such an extent that the damage was irreparable in spite of an abundant feeding.

Queen larvae over 3 days old (over 20 mg.) probably passed the stage of their development when partial inanition causes irreparable damage to the ovarian tissues and therefore the resulting pupae had larger ovaries. The pupae obtained from the queen larvae 48 mg. and over had their ovaries almost completely developed to the queen type so as not to be affected by the change in the diet produced by Rhein. This also manifested itself in the external characteristics.

In the light of these findings it is

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possible to explain why such differences appear in the characteristics of the queen and worker. Goldschmidt (1931) expressed an opinion that hormones play a part in the determination of sexes in insects. There is an evidence that the *corpora allata* are glands of internal secretion which regulate insect metabolism (Pflugfelder, 1938). However, according to Pflugfelder (1937), the queen honeybee has the *corpora allata* only slightly larger than the worker. In case some pathological conditions interfere to a certain degree with the normal development of hormone producing organs, then the changes which are influenced by this hormone are less pronounced. It has been pointed out previously that there are certain changes in the structure and function of ovaries as a result of inanition. Worker larvae have much less developed ovaries than the queen larvae. Komarov (1935) presented an evidence that in the transitional types of female bees, the size and development of the ovaries correspond to the modified types of structual characteristics of the transitional types. Salt (1931) stated that "the inter-sexual characters produced by stylopization do not appear at haphazard, but in a definite sequence"—depending on the degree of stylopization. The same phenomenon was found by Von Rhein (1933) in honeybees. He stated: "The differentiation (in queen) begins—first in the ovaries, in spermatheca, and in pharyngeal glands and ends in mandibular glands which is the latest determined organ. So it appears that the organs are determined not simultaneously but one after another." From his table it is evident that the external changes characterizing the queen are present only in those individuals which have their internal changes complete.

These facts lead the writer to postulate that the anatomical and physiological differences between the worker and the queen honeybee are, to a great extent, due to the ovarian hormone or hormones which in case of the queen larvae are likely to be secreted in a sufficient quantity to cause those structural and physiologica! changes which characterize the queen. In case of worker larvae, which have the ovaries in a rudimentary state, this does not occur.

Whether the same hormone or hormones cause the suppression of development of the pharyngeal glands, or invoke a greater growth of the mandibular glands, or what is their interaction with the activity of other hormones playing part in the determination of the queen honeybee can not be answered now.

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American Honey Institute News Notes

MAY THE YEAR 1940 RING IN Health, Happiness, and a rich Honey Harvest.

• • •

DO YOU KNOW THAT—

The Sacramento and Vicksburg meetings were ones never to be forgotten?

• • •

During the year, 1939, honey flowed through the air from coast to coast in our great country four times?

• • •

On January 31 a representative of the American Honey Institute broadcasts from Chicago through the courtesy of the Goodyear Tire & Rubber Company?

• • •

Through the courtesy of Grapenuts program, sponsored by General Foods, honey was featured on the Kate Smith hour on November 24?

• • •

On the Young Doctor Malone program, sponsored by the Post Bran Flakes program on December 8, both comb and extracted honey were mentioned? The woman who gave the broadcast had a wonderful voice and stressed honey.

• • •

A representative of the Institute broadcasted on October 29 and 30 from Vicksburg, Mississippi?

• • •

We broadcasted from Sacramento, California?

• • •

We broadcasted four times on honey over WHA and WLBL at Madison?

• • •

Wilson & Company had a most attractive advertisement on honey and Tender-Made ham in 123 papers in the United States on September 28?

• • •

This same company mentioned Canadian bacon and honey on September 14?

• • •

George Rector in Wilson & Company's column cooperated with the Institute and has included honey in his column at various times?

• • •

Swift & Company had a colorful full-page ad in McCall's, American Home, and other magazines, in which honey baked ham slices were illustrated with the recipe?

Eatmore Cranberries had a full-page ad in which they featured honey baked ham slices with cranberries on the cover of Practical Home Economies, November issue?

• • •

Governors in many states issued proclamations designating October 23 to 30 as National Honey Week?

• • •

Department of Markets in various states cooperated with American Honey Institute in giving publicity to National Honey Week.

• • •

Requests for honey recipes have come from Home Economics instructors in every state in the union and Bulgaria and Porto Rico?

• • •

A number of broadcasting stations have asked the Institute to send recipes gratis to all who request leaflets after the broadcast on honey?

• • •

A Home Economics Department of one of the largest schools in the country has contributed quantity sized honey recipes to the Institute? These recipes will be available in leaflet form for tea rooms, cafeterias, and hotels.

• • •

In the November 25 issue of Bakers' Helper more than a full-page was devoted to Holiday Honey Cakes by W. E. Broeg?

• • •

The December issue of Bakers' Review had recipes for Peppernuts, Honey Cake, and Dark Fruit Cake containing honey?

• • •

We congratulate Bakers' Helper and Bakers' Review for their contribution to discriminating customers of the Bakers of America?

• • •

A few of the leading colleges and universities in our country in 1939 for the first time included honey in their Experimental Cooking Classes?

• • •

These schools as well as our industry were benefitted by this experience?

• • •

The Institute can now tell of this work to other colleges and try to interest them in similar work?

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Space in the journals is limited or we could tell you more?

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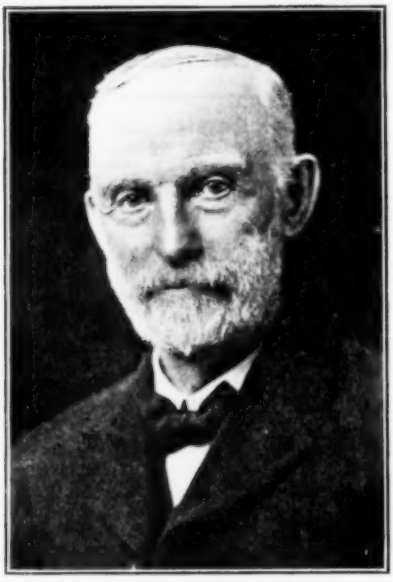

A. I. ROOT

The founder of Gleanings in Bee Culture and the first author of the A B C of Bee Culture.

100th Anniversary of A. I. Root's Birth

E. R. Root

Born December 9, 1839
Died April 30, 1923

One hundred years ago, or more exactly, on December 9, 1839, A. I. Root, the founder of this journal and of the Company that bears his name, was born in a little log house a few miles from Medina. Had he lived he would have seen marvelous changes and yet during the period of his active work in beekeeping, 1865 to 1885, he laid the foundation of modern bee culture. No less than Dr. E. F. Phillips of Cornell University, said that he was the evangelist who perhaps more than any one else popularized the then little known business of keeping bees. A. I. Root was the first to make a really good commercial comb foundation. All previous attempts were crude and without side walls.

It was A. I. Root, in 1878, who sent bees in wire cages without combs all over the country, and now close to half a million pounds of bees are so shipped annually from the South to the North to cover winter losses and spring dwindling, and to start new apiaries.

L. L. Langstroth was the Gamaliel at whose feet A. I. Root often sat when he was learning his A B C's of beekeeping. In those days he wrote under the modest nom de plume of Novice, proving that the Langstroth hive and frame were far superior to all other so-called movable frames. The net result of his early writings made the Langstroth system and the Langstroth frames and dimensions almost universal throughout the United States. Fortunate we are in this country in that we have one hive and frame instead of a dozen different styles of frames and hives as we find in Europe.

Novice in the early days had a style of writing, first, in the old American Bee Journal, and then in Gleanings in Bee Culture, that bubbled over with contageous enthusiasm. He did more to advance bee culture by recounting his mistakes than in his ventures that met with success. These are set forth in the Preface of the 1940 edition of the A B C and X Y Z of Bee Culture.

When A. I. Root passed away in 1923 his life and work was broadcast in newspapers and magazines in this country and Europe. Gleanings office has on file hundreds of these clippings.

There was one write-up that appeared in the Medina Gazette, by the then Editor, W. B. Baldwin. From it the following extract was taken and which is now in bronze on Mr. Root's tombstone:

"Amos I. Root was one of the most remarkable men of the past two generations, remarkable not in one

way, but in many ways. His was a many-sided character, if any man ever had one. Inventor, writer, manufacturer, publisher, thinker, philanthropist, reformer, moralist, agriculturist, Christian. In all of these his character was marked and he was a leader. In most of them he loomed large. Even as an agriculturist, he tilled the soil in a modest way, yet as in everything else he excelled in this. For he not only made two blades of grass grow where only one grew before, but he was gifted with the ability to make things grow where they had never grown before. In many ways his reputation was world-wide."

The following introduction by A. I. Root to the first A B C of Bee Culture will always remain a classic:

"About the year 1865, during the month of August, a swarm of bees passed overhead where we were at work, and my fellow-workman, in answer to some of my inquiries respecting their habits, asked what I would give for them. I, not dreaming he could by any means call them down, offered him a dollar, and he started after them. To my astonishment, he, in a short time, returned with them, hived in a rough box he had hastily picked up, and at that moment I commenced learning my A B C in bee culture. Before night I had questioned not only the bees but every one I knew who could tell me anything about these strange new acquaintances of mine. Our books and papers were overhauled that evening; but the little that I found only puzzled me the more, and kindled anew the desire to explore and follow out this new hobby of mine; for, dear reader, I have been all my life much given to hobbies and new projects.

"Farmers who had kept bees assured me that they once paid, when

Almost hidden among the shrubs and trees of the old Root homestead, but by no means forgotten, stands today the first structure (10 x 14 feet) that A. I. Root ever built for bee culture. If it could speak it could tell how its enthusiastic owner in the late 60's extracted therein, in one season, his first 6000 pounds from 48 colonies; of how he actually took a barrel of honey from one colony, but not until after he had made many mistakes. It was in this building also where he lost his bees in wintering. This building is the forerunner of what has been called the "Home of the Honeybees", that covers four or five acres.

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the country was new, but of late years they were no profit, and everybody was abandoning the business. I had some headstrong views in the matter, and in a few days I visited Cleveland, ostensibly on other business, but I had really little interest in anything until I could visit the bookstores and look over the books on bees. I found but two, and I very quickly chose Langstroth. May God reward and forever bless Mr. Langstroth for the kind and pleasant way in which he unfolds to his readers the truths and wonders of creation to be found inside the beehive.

"What a gold mine that book seemed to me as I looked it over on my journey home! Never was romance so enticing—no, not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein. Late as it was, I yet made an observatory hive and raised queens from worker eggs before winter, and wound up by purchasing a queen of Mr. Langstroth for $20.00. I should, in fact, have wound up the whole business, queen and all, most effectually, had it not been for some timely advice toward Christmas, from a plain, practical farmer near by. With his assistance, and by the purchase of some more bees, I brought all safely through the winter. Through Mr. Langstroth I learned of Mr. Wagner, who shortly afterward was induced to recommence the publication of the American Bee Journal, and through this I gave accounts monthly of my blunders and occasional successes.

"In 1867 news came across the ocean from Germany of the honey-extractor; and by the aid of a simple home-made machine I took 1000 pounds of honey from 20 stocks, and increased them to 35. This made quite a sensation, and numbers embarked in the new business; but when I lost all but 11 of the 35 the next winter, many said: 'There! I told you how it would turn out.'

"I said nothing, but went to work quietly and increased the 11 to 48 during the one season, not using the extractor at all. The 48 were wintered entirely without loss, and I think it was mainly because I took care and pains with each individual colony. From the 48 I secured 6,162 pounds of extracted honey, and sold almost the entire crop for 25 cents per lb. This capped the climax, and inquiries in regard to the new industry began to come in from all sides. Beginners were eager to know what hives to adopt, and where to get honey-extractors. As the hives in use seemed very poorly adapted to the use of the extractor, and as the machines offered for sale were heavy and poorly adapted to the purpose, there really seemed to be no other way before me than to manufacture these implements. Unless I did this I should be compelled to undertake a correspondence that would occupy a great part of my time without affording any compensation of any account. The fullest directions I knew how to give for making plain simple hives, etc., were from time to time published in the American Bee Journal; but the demand for further particulars was such that a circular was printed, and, shortly after, a second edition; then another, and another. These were intended to answer the greater part of the queries; and from the cheering words received in regard to them it seemed that the idea was a happy one.

"Until 1873 all these circulars were sent out gratuitously; but at that time it was deemed best to issue a quarterly at 25 cents per year, for the purpose of answering these inquiries. The very first number was received with such favor that it was immediately changed to a monthly at 75 cents. The name of it was Gleanings in Bee Culture, and it was gradually enlarged until, in 1876, the price was changed to $1.00. During all this time it has served the purpose excellently of answering questions as they came up, both old and new; and even if some new subscriber should ask in regard to something that had been discussed at length but a short time before, it was an easy matter to refer him to it or send him the number containing the subject in question.

"When Gleanings was about commencing its fifth year, inquirers began to dislike being referred to something that was published half a dozen years before. Besides, the decisions that were then arrived at perhaps needed to be considerably modified to meet present wants. Now you can see whence the necessity for this A B C book, its office and the place we propose to have it fill. A. I. ROOT."

"December, 1878."

From the Field of Experience

I HAVE NOTICED THAT—

(1) Proper management in late summer and early fall, is the making of next year's honey crop.

(2) In this locality, colonies united near the close of the summer flow, or beginning of the fall flow, are better than colonies united near the close of the fall flow.

(3) Colonies here, going into winter with a food chamber full of stores, come through the winter strong, and do most of their swarming ahead of the main honey flow, so that parent colonies often store some surplus, while colonies weak from lack of stores may not reach swarming strength until the main flow is on, then they swarm, and it may be too late for either the swarm or parent colony to store surplus unless the flow continues for some time.

(4) Dequeening for ten days cannot be depended upon to prevent swarming in this locality. A period of 15 to 18 days followed by the introduction of a young queen mated from a nuclei, is best for me.

(5) In returning the old queen to a dequeened colony, cells should be destroyed the day before the old queen is returned. If returned immediately after the killing, she may bring out a swarm, leaving the bees without any means of rearing a queen. One pulled this stunt on me this season. I thought they might have a virgin, although I could not find one, and left them alone. Several days later I found that laying workers had started.

(6) One colony last season, from which I had taken the queen with two frames of brood for 10 days, swarmed out after the queen and brood were returned. I had overlooked two cells which had been built side by side right up against some drone brood. The old queen was killed, and the two cells were left, resulting in two swarms after the young queens emerged, and the bees requeened themselves from the nuclei brood which had been returned. This colony must have been without any egg laying for about 28 days other than what the old queen had deposited in the two nuclei combs. However, due to the honey flow continuing late, this colony stored sufficient for winter.

(7) A queenless colony with little or no larvae to feed, seems to store more honey for a while than one with a laying queen, but most of it goes into empty cells in the brood department.

(8) Some hybrid colonies make a good showing early in the season, and probably for one whole season, but pure Italians most always prove to be the best, year after year.—B. P. Sieber, Aurora, Nebr.

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AN OLD METHOD OF TRANSFERRING BEES

Everett M. Warren

Every little while some one writes to the bee journals and describes a different method of transferring bees from box hives into modern, movable-frame hives. While all these methods differ, and some are more or less involved and complicated, most of them get the bees out of the box hives. These different methods indicate that we don't like the messy and unsatisfactory job of tearing the old box apart, cutting out the combs and fitting them into the new frames. Such a procedure always results in too much drone comb, too many stretched and crooked combs, and not infrequently starts robbing. Very often the queen is lost, besides. The loss of the old queen, however, might be an advantage, as many box hive colonies need requeening with queens from a better strain of bees.

A simple and efficient method, which has been used by old-timers and present day beekeepers alike, is as follows: Turn the box hive upside down, remove all, or nearly all of the bottom, and place over it a standard hive body filled with drawn combs or frames with full sheets of foundation, and a cover. Close all openings between the old and the new hive, leaving only an entrance in front, between the two hive bodies. This will cause the bees to go in and out above the old crooked combs and below the new ones. By turning the old hive over we also turn the crooked combs upside down. This puts the cells in an unnatural position and makes them somewhat less suitable for brood-rearing and the

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storage of honey. With the old combs in this position, the bees will be less reluctant to leave the old brood nest. A comb of sealed brood placed in the new hive will be an extra inducement for them to start work in the upper story more quickly.

When the queen has a brood nest established in the new hive place a queen excluder over the old combs to prevent her going back, keeping the entrance above the excluder. Be sure to put on supers in time to prevent the new combs becoming crowded. Before the season is over the colony will have moved, bag and baggage, up into the new quarters, and the box of old combs can be taken away and the wax melted. Mr. George H. Rea, the New York Extension Apiarist, says he has transferred hundreds of colonies in this manner.

Transferring is best done early in the season, during the fruit bloom or some other early honey flow, so the steady supply of fresh nectar will stimulate the bees to expand and build new comb. Late transferring should be avoided. If the box hive colony isn't in condition to live until another spring, it is certainly not likely to become well enough established on new combs to winter successfully.

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OHIO WINTER BEE LOSSES

W. E. Dunham
Extension Entomologist, Ohio State University, Columbus, Ohio.

Through the cooperation of bee keepers', data have been gathered on the winter losses during the past four years. The survey covered over 15,000 colonies each year. These data have been assembled and summarized. Table 1 records the average per cent of winter killed colonies on the basis of **unpacked** and **packed** colonies. Table 2 is a summary of losses occurring during the last three years in the **unpacked** and **packed** classification, but giving additional data as to whether colonies were in 2, 1½, or 1-story hives.

Table 1. Summary of Ohio Winter Bee Losses

Year	Unpacked colonies	Packed colonies
1935-36	34.9 per cent	17.0 per cent
1936-37	4.5 per cent	2.9 per cent
1937-38	11.6 per cent	8.0 per cent
1938-39	4.6 per cent	4.1 per cent

MORE COMMENTS

C. H. Pease

Mr. Latham stated that at the summer meeting he "did not recommend painting hives black"; but he did approve of black hives when the black is in the form of black felt roofing paper, of which, as he reported in the November Gleanings, he has now "close to 300 hives" covered with it. He also stated that his hives are "double and triple walled", but I fail to grasp the philosophy of covering hives with black to draw the heat and double and triple walls to repel it.

No, Mr. Latham, I am not trying to "stir you up"; I simply do not agree with you in everything, neither do you agree with me in everything, which, of course, balances the account. On the other hand, I do agree with you in many details of beekeeping, as, for instance, when you told Gleanings' readers several years ago that "It is not safe to say 'bees always do this', 'bees never do critters up and do just the thing they never do, and vice versa".

After all, what do these arguments amount to, anyway?—but think of the fun we are having!

In Mr. Isaacson's comments (page 690) he said: "Mr. Pease (page 622) doesn't believe that heat can pass through a spotlessly white painted hive." If Mr. I. will read again what I said on page 622 I think he will find that I said "white paint repels the heat", but I did not say that it repels all of it. Leslie Burr, in his article on page 678 of the November Gleanings cites a specific case of white paint repelling heat on the ships in the U. S. Navy, the result of which "lowered the temperature of the ships 18 degrees when under the direct rays of the summer sun". Whether my white hives repel 18 degrees, or more, or less, I do not know, because I have no facilities for determining it; I simply know that it repels enough so that the combination of the white paint, insulated covers and big open entrances have put a stop to the bees hanging outside on our hottest days, as they did before I used this combination—and that's what interests me more than theories and arguments.

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Table 2. Summary of Winter Losses

Year	2-story colonies		1½-story colonies		1-story colonies	
	Unpacked	Packed	Unpacked	Packed	Unpacked	Packed
1936-37	1.7%	1.7%	6.8%	2.0%	8.5%	4.2%
1937-38	8.7%	4.0%	12.7%	5.9%	12.7%	8.7%
1938-39	3.7%	2.6%	3.5%	4.0%	6.5%	2.1%

A COMFORTABLE GRIP

Benj. Nielsen

Any one who has had occasion to move a number of 5-gallon cans filled with honey is familiar with the welts which appear after a few cans have been hefted. Fingers are apt to be sore and somewhat stiff the next day.

In the accompanying picture a simple device which affords a comfortable grip is shown. Strain on the hand and resulting soreness may be avoided by slipping a section, cut from the rim of a wooden steering wheel, over the wire handle. A slot wide enough to take the wire should be sawed in the section. If desired, a small screw may be placed at one end, or a hole may be drilled crosswise, so the section may be hung on a nail in a convenient place.

A comfortable grip for moving heavy 5-gallon cans.

It takes but a second to slip the section on the wire, and the small ready-made depressions, on the inner side, provide an easy, comfortable grip far different than the narrow wire affords. Try it once and you will probably be a steady user.

Aurora, Nebr.

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A SKUNK AT MIDNIGHT

Bro. Stephen Babek

In the past few years there have appeared a number of articles in Gleanings about skunks and different ways of killing them.

I always enjoy reading these articles as it enables me to learn more about skunks and their habits. Falling in line with the other writers, I would like to relate my experience, or rather observations, with skunks.

Our bees are on a terrace wall on the side of a hill. On the upper side there is another terrace wall forming a park level. On the lower side, some 150 feet distance, is a row of poultry houses. Under two of these houses and in the rock wall, rats were so numerous that the poultryman had to watch the feed closely. The last five or six years skunks gradually took possession of the stone walls and the hiding places under the poultry houses. And it was noticed that the rats disappeared.

During these years I watched for skunks at the bees, but only once did I see one walk away as I approached. Still I am not sure it was a skunk, for it was almost dark. At the poultry houses, however, skunks are seen frequently. They get into the feed house through the vent pipe. I myself carried one out once in a box in which he had hidden himself. Of course, I keep a row of bricks in front of the hives which is supposed to keep skunks away, as I also read in one of the articles on skunks mentioned above.

In another article about skunks, the writer states that they prowl about in the early part of the night and before daybreak. This one may be an exception to the general rule. We have a watch dog, a German Police, near the poultry yard. On several occasions he barked at something as if another dog was trying to take away his alotment of soupbones. But one midnight he continued to bark louder than usual. Since I could not sleep that particular night, I got up, dressed, took a flashlight, and went to see what was causing the excitement. There I found to my surprise a big skunk outside of the dog-pen shaking his tail as if trying to scare the dog away so he could pick on the bones.

Now, the point I want to bring out is this: I believe that skunks, just as bees, go where they can get the most. In other words, when there is a poultry-house near they will flock there and overlook the bees. The fact that skunks are out only at night while the chickens are at roost, makes it easy for the poultryman to keep everything out of their way.

For my part, I would just as soon have skunks under a woodpile, corncrib, or a chicken house for exter-

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minating rats as to have cats and rats both. Our poultryman never complains about skunks damaging anything. The chickens are screened in, and the eggs are gathered and placed in safety so the skunks can promenade at liberty.

So far as I know, skunks will not attack a person unless they are hemmed into a corner. They will run or hide at one's approach. The only objection to their presence is their distinctve mark of filling the air with an unpleasant odor at times. However, even in this there is a respect of time, for it generally occurs mostly in the night when we are asleep.

Another thought—if we feed dogs and cats for their services, why not throw a piece of useless meat scrap where the skunks can find it. Thus keep them out of extreme mischief. In winter the skunks are trapped to keep them from getting too numerous.

P. S.

Contradiction

Since writing the above article, I saw a large skunk coming out of some weeds at noon. As the little striped pig emerged into the opening, I understood why daytime—at that particular moment, the little fellow had a better sense of the full gleam of Lady Moon than I.

Subiaco, Ark.

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SECOND GLANCES

C. M. Isaacson

It doesn't fail! Again it is snowing hard as Gleanings arrives—the first snow since my last month's report. This time with bees in the cellar, and December at hand, it looks like the real thing. After an unusually fine November, we (the bees and I) should be more able to stand its rigors.

Mr. Clay writes on a subject that will be regarded as timely by most (page 733). His comment that a short crop of honey does not necessarily mean higher prices is a fact many are finding out for themselves this year. That the price of sugar and other sweets affect honey little is a point he will find many in disagreement with. I believe; but we can all agree with his advice to produce good honey and advertise it well. Among his reasons for low prices, he fails to stress low consumer buying power, which in the case of honey (which is too often regarded as a luxury, whether we like to admit it or not) has a marked effect.

Mrs. Nielsen (page 737) and Mildred Ross (page 746) are both contributing a lot to our honey industry. The prime factor in our selling problem lies in developing a wider use for honey, and their articles certainly assist in this. Mrs. Nielsen's statement as to the superior keeping qualities of honey foods is one that should be stressed by every beekeeper—the advantage of being able to prepare these foods in advance is one that will be appreciated by a busy cook.

Mr. Haydak's article (page 740) is more of a scientific nature than often found in our bee journals. It is through this research work, which the ordinary beekeeper is not trained to do, that a good deal of our advances in beekeeping are made possible. Several of the investigators report somewhat contradictory results, and Mr. Haydak's opinion that worker and queen larvae do not receive a markedly different food, is interesting in contrast to the widely held belief to the contrary. His statement (page 742) that pollen is not necessary for the development of worker larvae would seem to need further amplification in view of the recent stress laid on the value of pollen.

Those metal tags and cloth inner covers (page 744) are valuable aids that many beekeepers may be able to make use of. Mr. Beach's description of his winter preparations is complete, and backed by experience as it is, should be of value in adding to the several articles on wintering that have appeared lately.

Mr. Nielsen's honey cabinet (page 748) is simple in construction and appears to be a real convenience to anyone retailing any considerable amount of honey. Incidentally, the picture shows what seems to be a household platform scale, which usually are not legal for trade use. It would be of value to learn where one can be secured that does comply with the various state laws.

Mr. Pease (page 751) evidently believes fall honey to be bad for winter stores. There are good arguments supporting his contention, but sometimes experience will confound the best of reasoning. In my own case, the best wintering I remember, came after a heavy fall flow from goldenrod and aster, which we usually secure little of. Perhaps it is the kind of honey and the degree to

which it is ripened that are the determining factors.

Australian beekeepers evidently have their troubles as well as the rest of us. It is rather queer to read of a January heat wave, especially with temperatures such as Mr. Stephens mentions. That he had no losses from melting down under such conditions is a tribute to his beekeeping ability.

There is a lot of value in that last editorial (page 759). The last paragraph especially is good advice for an apiarist moving into new territory. No bad feeling will result if things are "talked over" with the local beekeeper.

That is an unusual method of queen introduction mentioned by Mr. Deyell in his account of the Vicksburg meeting. Past teachings have been that the bees and a strange queen should become "acquainted" through the wire screen—not have it covered. It will be interesting to try out.

Look at the long list of radio stations on page 771. Then remember that this is only one of several programs that our American Honey Institute has persuaded to mention honey. Can we **afford** to neglect the Institute? Keep your contributions coming—they will return many fold.

Middle River, Minn.

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HONEY EXHIBIT AT ALABAMA STATE FAIR AT BIRMINGHAM IN OCTOBER 1939

Thos. Atchison

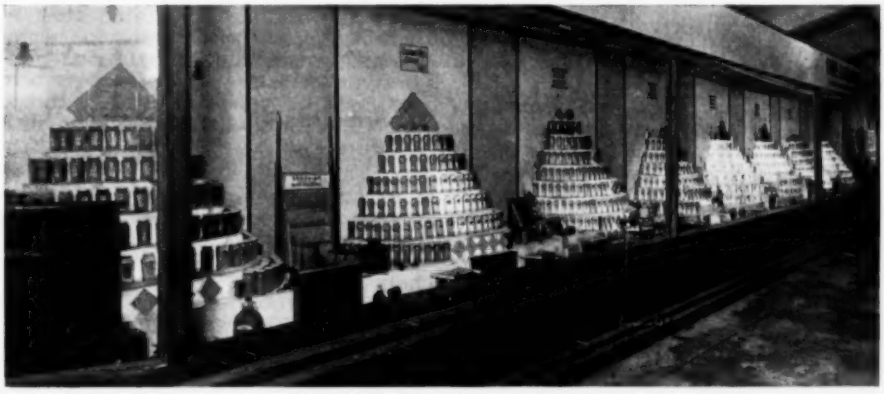
This is the picture of the 1939 bee and honey booths that were put on by the Alabama beekeepers at the Alabama State Fair in Birmingham the first part of October. These are the largest and best bee and honey exhibits that we have ever had in the state. The beekeepers were able to arrange larger booths because the Alabama State Fair increased the premium list. We had about $800.00 in premiums for the bee and honey exhibits and about $30.00 in premiums for honey-made candy, which made it quite interesting for the ladies to put on beautiful displays of honey candy.

The leading bee shippers who were responsible for this beautiful display were W. E. Harrell, Hayneville, H. C. Short, Fitzpatrick, Gene Cutts, Montgomery, H. M. Norwood, Birmingham, and R. Q. Brashier, Birmingham. These exhibits created quite a lot of interest as there was always a crowd around the booths asking many questions and also asking for recipes using honey

We had the largest attendance that we have ever had in the state as each day more than 100,000 people passed through the gates.

I have been notified by the American Honey Institute that requests for recipes have been coming into the office at Madison ever since the fair in Birmingham as we did not have pamphlets to give out at the booth. People wanting recipes were asked to write the American Honey Institute in Madison, Wisconsin. This was the first year for sometime that we have not had a honey demonstration in connection with the booths.

We received wonderful cooperation from our Commissioner of Agriculture and the officials of the Alabama State Fair.



The 1939 honey and bee exhibit of the Alabama beekeepers at the State Fair in Birmingham in October.

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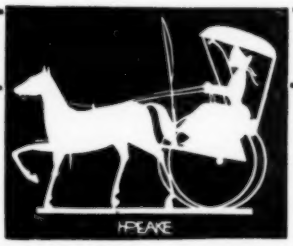
Spinster Jane Says:



We have had a glorious autumn, mostly mild and sunshiny, and the winter will seem much shorter. Of course there has been plenty of mud, and bad roads, but what matter, so long as the sun is shining! It is really the best plan to look up, anyway. Do you remember the famous person who missed a shining crown because of keeping his eyes on the ground?

Our bees are being wintered in the cellar, this year. Honey Boy has had no time to make regular wintering cases. A friendly beekeeper from western Ontario told us to write the Experimental Station at Kapuskasing, and there get a plan of single wintering case, which we intend for later use. One novelty this season was, our bees were able to have a splendid flight on November 16, and even later, and they should come through in fine shape.

In carrying the hives into the cellar, Boy's dad helped. Of course, some bees crawled out, and after dad returned to his work, one crawling upon his back stung him on the neck. Not the turkey, but John, got it in the neck that time.

Boy, after being so long shut up in a dark mill, is finding the active out-door life most refreshing. A bit thrilling, too. He went a hunting a few days ago, and because of an adventure then got himself very much in the lime-light.

He, along with two others, on this trip, on entering a deep gully, noticed an area swept clean of all leaves and brakes. "Looks as if a bear had holed up around here," one remarked. Looking about, they espied a small opening into the bank, underneath a tree root, but scoffed at the idea that any bear could be inside that small opening. Boy even got down on all fours and poked his head through the opening. And there, to his consternation, looming just above him, was the big head and fiery eyes of a very-much-alive bear!!! He drew back in a hurry, and none too soon. Another of the party had begun poking about in the rear of this hide-away, and the frightened inmate made a dash for freedom, almost into Boy's very face. Luckily it was no fierce old mother bear, but a lusty, yearling cub. In the confusion and conflict that ensued, bruin lost out, and soon his silky coat will become a soft, warm rug.

We are not sorry either. Unlike Jack Miner, we do not care for too many bear-neighbors. They have committed many depredations in our community, and are growing too numerous for our peace of mind. They plan hunting up the old bear's hide-away, but Boy will not poke his head in any den again. Of that I feel sure.

We hope in the spring to add a number of colonies of package bees to our small yard, and really begin to practice real beekeeping. Boy has tried to keep in touch with the business, meeting occasional beekeepers, and always reading my copy of Gleanings. He has chosen the site. It will be well sheltered on the north by what we call a mountain, and it will also be well shaded by numerous trees and bushes. Because the lad is still young and supple, let the bees swarm as high as they please. I won't have to do the climbing nor take the stings, nor will his dad.

I am proud of one Canadian,—the one who sent a supply of honey to Jim Hunter, popular radio reporter for the Toronto Telegram. He told it over the radio, also stated that he would share it with those more unfortunate than he. This is fine publicity. When Boy's bear-adventure was broadcast, he did not like it, but HONEY! Fine!

While giving Boy advice as to ways and means of making a livelihood until his apiary is a certainty, I stressed this point; "Take any honest thing to do that will bring in a cent." He took me all too literally. He helped dig out a den of skunks, and certainly brought home a scent, and plenty of it. He will be in the "doghouse" in consequence, for quite some time, and I will substitute the word "dollar" in that advice. It's safer far.—Spinster Jane.

Editorials

NEW YEARS GREETINGS to our large family of Gleanings readers everywhere. May this coming season be pleasant and profitable.

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As California, the great honey state, has dominated honey price levels in the past, so it will in the future.

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Don't forget to try drizzling a good tablespoonful of honey on a dish of ice cream and note how the quality of both are improved. We have called attention to this before, but it bears repeating.

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Whatever may be said of the folly of excessive hive packing for the average northern localities there is one point on which all agree, and that is the importance of windbreaks on the exposed sides of the apiary.

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Commercial beekeepers with outapiaries are finding that it actually costs money to operate big or small trucks and that the per colony average of surplus honey must be close to or above 100 pounds to show any profit. **Moral,**—select dependable apiary locations and make every move count.

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Reports received from over the country would indicate that the long period of warm weather in practically all regions this past fall and early winter resulted in a heavier consumption of winter stores in hives than normal. Early spring inspection will be advisable where the amount of stores is questionable.

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Price cutting of honey on the West Coast is possibly even worse than in the East. As usual, every one blames the other fellow for starting to cut. The per capita consumption of honey in California is much higher than in the East. There are more roadside stands and in general more bottlers of honey on the West Coast than elsewhere. This may explain why price cutting goes on.

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The United Census Bureau, Washington, D. C., is planning to make, as of April 1, 1940, the most complete census of bees and honey yet undertaken. All beekeepers are asked to cooperate in this worthwhile project.

The offensive odor detectable in some honeys is blamed on the use of carbolic acid in freeing bees from supers. Many beekeepers and honey buyers are violently opposed to its use. It is admitted by all that if **directions are carefully followed** there will be no odor in the honey.

The largest jobbers in honey and most beekeepers on the West Coast fear that a few will not follow directions. There is a real danger here especially if the newspapers broadcast a story about carbolic acid in honey. It might spread like the Wiley Lie of fifty years ago about artificial comb honey and the Wiley Lie is not dead, even yet.

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Honey a Health Food—or Is It? An Ontario beekeeper during the Toronto beekeepers' convention held recently said that a government food inspector in his province ordered him to remove the word "health" from his honey sign reading, "Honey—a Health Food". This report caused considerable stir at the convention. A committee was appointed to investigate the matter. We shall be interested to learn the result of this investigation.

If honey isn't a health food, then what is it? It is high time the general public (including food inspectors) learn more about honey, the world's oldest and most healthful sweet. Honey doesn't need to take a back seat. It will stand on its own merit. Honey is a carbohydrate, an energy food, easily assimilated into the bloom stream, because the most important and difficult part of digestion has been accomplished by the bees. Yes, honey is indeed a health food.

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Wintering Bees in the Northwest Wintering in single-walled hives in the great Northwest seems to be the general practice even when the temperature plays around zero and below. In many cases top entrances are used of ⅝ to 1 inch holes near the top. The use of top entrances is increasing very rapidly as they leave the cluster spaces drier.

Packing? Yes, these Westerners admit that wrapping of slater's felt helps but they ask does it pay for the extra cost?

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Excessive packing is gone forever because it gets damp and freezes.

It should perhaps be explained that there is less need of packing in the West than in the East because the general atmosphere is drier.

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Queenlessness Accounts for Some Winter Losses

A beekeeper in one of the Northern states says that last season he took occasion to examine carefully one of his apiaries quite late in the fall and found a considerable percentage of the colonies queenless. He wonders if this condition may prevail quite generally and if so, if it accounts for some winter losses, which are usually charged up to other causes,—shortage of stores or lack of protection.

We have observed, in our commercial apiaries, that some few colonies that appear perfectly normal, with young queens, at the last inspection in late September or early October, are found queenless the following spring. Just why this occurs we cannot say. Possibly some of our readers can throw some light on the matter.

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Does Confinement in Cages Hurt Queens?

It would seem that a long or abnormal confinement of a queen in a cage might tend to interfere with normal egg-laying and perhaps cause early or abnormal supersedure.

At the Toronto meeting, Allen Latham told about a queen that got held up in the mails, was sent from place to place during hot summer weather and was finally returned to him after more than three weeks. This queen was still alive but her attendants were dead. The queen was introduced to a colony which became one of the best producers in the yard.

Some years ago, during the height of the queen season we had more queens than orders so we attempted to save some queens by hanging them, in their cages without attendants, into queenless colonies, about sixty queens in each colony. It was necessary to put a slow continuous feed of sugar syrup on each colony to prevent bees from deserting the queens, also to introduce a comb of sealed brood each week to keep up the strength of the colony.

We held the queens in those colonies for two months as an experiment. A few queens died but not many. Some of the queens laid eggs in their cages. They had to, because the queens were being fed by the bees.

At the end of two months these queens were introduced to colonies and so far as we could tell they performed just as well as young queens taken from queen mating hives.

The statement heard sometimes, that queens sent in mailing cages are short-lived appears to be unfounded.

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Beginners May Misunderstand Wintering Requirements

The three requirements for successful wintering in the North, viz., (1) very populous colonies consisting mainly of young bees, (2) an abundance of good stores,—well ripened honey and pollen, and (3) protection against the elements are still essential.

Good beekeepers are finding that they can winter bees in the North with somewhat less insulation or packing than was recommended some years ago. This is because colonies headed with good queens, occupying hives with good combs consisting of worker cells (and not with an abnormal amount of drone cells) in double-story or food chamber hives containing a super-abundance of honey and pollen are, as a rule, enormous colonies, much larger than the colonies of a few decades ago, that occupied hives with smaller brood chambers.

These enormous colonies can withstand the rigors of a severe winter much better than smaller colonies and they actually can and do get on with less packing which means less labor and time expended in packing in the fall and unpacking in the spring.

Beginners and inexperienced beekeepers should make sure that the colonies to be wintered are very populous and well supplied with stores. Colonies that are understrength and lacking in stores are not likely to winter well even though they are given an ample amount of packing and protection, whereas very populous colonies with a super-abundance of stores are likely to winter well even though the packing or insulation may be scanty. Good windbreaks for each apiary are essential.

Ignorance Concerning Bees and Honey

Last spring a lady from a nearby city called long distance to ask us to take a swarm of bees from one of her trees, then in bloom. Inquiry revealed the fact that there was no swarm but that bees were visiting the blossoms on the tree in search of nectar.

There is an appalling ignorance concerning bees and honey. All that the majority of people know about bees is that they sting and that they make honey. And yet it seems safe to assume that the public knows more about our industry than it does about some other industries. Possibly we are not capitalizing as we might on what people know (or think they know) about honey.

Not until the general public becomes better informed about honey, its various uses, and its superiority as a health sweet, will the demand increase. The problem is—how to get this information across to the public? If every beekeeper in the country would do his or her part in disseminating this information by word of mouth or through the printed page we might be agreeably surprised at results.

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Honeybee Scores Another Point

On Oct. 30, 1939, a circuit judge in Southern Michigan heard a case that was an appeal of a beekeeper, who, last June was found guilty in Justice Court of maintaining a nuisance and endangering public health by keeping 11 colonies of bees in his back yard.

An expert witness, a doctor, testified that "in 1936, twenty-six persons in New England States died of bee stings also that the bee has a form of poison, which to persons susceptible to bee stings, may be more dangerous than rattlesnake venom".

On cross examination the doctor said that only certain types of persons were allergic to bees and as a result the public at large was in no great danger and to the average person a bee sting may be no more dangerous than a mosquito bite.

The judge ruled that inasmuch as this beekeeper had kept bees for 26 years, with only one complaint, he was not maintaining a nuisance. He dismissed the case.

And so, the honeybee, a friend of man, scores another point. Let us hope that the general public may rapidly become more familiar with the important work of the honeybee and our industry.

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Don't Dump Poor Honey on Bakeries

It is high time to eliminate this line of thinking from the minds of the beekeeper if we are to preserve a very important outlet for our product. Too often the slogan has been, "Send your poor honey, your odds and ends, to the baker and your good well graded honey to the bottler and roadside stands".

The fact is, the baker will take a dark or strong flavored honey provided it is clean and of **uniform quality.** He has certain recipes or formulas that require a certain amount of honey with other sugars to make a cake or cooky. If one lot of honey is thin at one time and another lot at another time is thick, or if one honey is mild and another is strong or yet again if one honey is high in levulose and another is high in dextrose, his formulas won't fit and his product will be poor.

When, however, a baker can get an invert sugar that is **always uniform** in quality and flavor his formulas will not be out of line and he will have a uniform quality of cake that he can depend on.

The baker, other things being equal, prefers a good uniform quality of honey to invert sugar syrup because a honey flavor in his product helps to sell it, but when he gets odds and ends of honey and attempts to use them, his product is poor and a dead loss because he can't even give it away.

As a general rule, the large jobber or broker has an outlet for these nondescript honeys. One kind he will sell to the tobacco manufacturer and another to the baker or candy maker. But mark this, the jobber or broker is too smart to send to the manufacturer any honey that is unstrained or dirty with particles of bees' legs, wings, pieces of wax and of propolis. By heating he will take these all out. Then he will blend a thick with a thin honey or a strong with a mild flavored honey, and by so doing he will make a blend that will be **uniform** and fit the formulas of the baker, candy maker, and the tobacco manufacturer.

It is only fair to say that these ideas were gathered from the large jobbers and buyers of honey on the Pacific Coast.

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From North, East, West and South

NORTHERN CALIFORNIA, December 5.

Weather: Throughout November our weather was like summer—clear and dry. Beekeepers like farmers are doing quite a lot of complaining. The farmers are not able to do the work necessary to get in their crops, and stockmen are very short of water for all kinds of uses on the farm. Wells which have been out of use for years are being reopened and the water used for stock. A report came today of a slight shower in the mountains. There is very little snow in the mountains and this is at a high elevation.

Honey Flow: Very few good beekeepers want to see a honey flow at this time of the year, but here in the eucalyptus district we are actually having a pretty good flow. The long continued dry spell and unusual warm weather has brought out the eucalyptus fully a month ahead of the usual time, and bees are bringing in more honey than needed for their daily use. How this will affect the spring flow is problematical. The prospect for a heavy crop has caused more than the usual amount of bees to be moved in. If the warm weather continues another month the trees will be in full bloom. Then if the rain commences and continues heavy as farmers would like it, the beekeepers will most likely suffer a heavy loss. There are so many ways the beekeepers can be affected. The only way is to wait and see how it works out.

Honey Market: There is little change in the market price for honey but the demand from buyers is encouraging. There is little of certain kinds of honey to be had. Beekeepers are awakening to the conditions they are facing and are determined to solve their problem for themselves. How they will succeed is a guess but it seems clear that an effort will be made. We have a good cooperative spirit among our beekeepers and the organization spirit is good. This is a good foundation to build on.

Miscellaneous: The good results of our honey exhibit at the Golden Gate Exposition has proven an incentive to many of our beekeepers to find another way to popularize honey. The Honey Promotion Committee of the California State Beekeepers' Association is not resting. Their plans for the coming winter are well in hand. With the fine start they have already made the future is bright. Some of our leaders are carefully considering a cooperative movement which may develop into something worthwhile. If it does, we can hope for better things in California.—Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, December 2.

Weather: Most of Southern California received a share of the heavy rain in September, then the weather remained dry until November 28 when a good rain fell over parts of Southern California. A few sections, ours not included, received as much as one and one half inches which puts things in fine shape in the fortunate localities. We are all hoping for a good drenching before the New Year, but so far there has certainly been nothing to complain about so far as weather in general is concerned.

The Honey Crop is over for 1939 and practically all has left the hands of the producer. A few scattering beekeepers report 100 pounds per colony but by far the greater majority of producers made just about enough to pay expenses.

The Market is strong with prices about one cent above those offered at harvest time.

Beeswax is in demand at prices well above those offered three months ago. With all of the meetings being held and different subjects being discussed we see no reason why a little effort can not be put forth to secure a few cents tariff on beeswax imported from foreign countries.

Miscellaneous: Reports vary considerably as to the condition of the colonies in different localities. In some districts a very heavy consumption of stores is reported while in others colonies are reported to be in fine condition with plenty of honey.

When a colony with the hive lifted at the back, pulls the scale to between 50 and 70 pounds, with only a loss of five to eight pounds since fall there is little need for worry. Many larger producers have a ton or two of honey in combs stored away to care for any colonies

that might be short of stores at a critical time.

Most beekeepers have the surplus combs off the colonies and stored in a dry place. These had been on the colonies for safe keeping and as the weather turned cool it was an easy task to remove them, a super at a time, in the early morning when the bees were clustered on the combs below. The handling of supers of combs instead of single combs has very materially added to the number of colonies that a man can care for.

While we are on the subject of surplus combs we heard a new one since our last letter. We have a native ant here in Southern California that is just a little larger than the Argentine ant so detested in this country. The beekeeper with whom we were talking said, "If I can keep a nest of these native ants near my surplus combs I do not worry about moths. These ants like nothing better than cocoons to work on. Only a few days ago I found a nest of these ants some distance from my apiary under an old piece of tin. I gathered them up nicely in a pan and carried them to a place near my surplus combs and made them a nest in the ground and covered them with an old hive cover and they went right to work to make themselves right at home. Oh, I do not worry if I have a nest of these busy fellows around". We live and learn and a little exchange of ideas still helps.

Candidates for the position of Inspector of Apiaries for Riverside County will soon be given an opportunity to try their wisdom in the answering of questions necessary to qualify for the position. Several have signified their intention of entering the contest if only to check up on themselves to learn what they know about their own business.

We were very sorry to have missed the big meeting in Sacramento but did meet several of the big shots at a big meeting in Orange a few days later.

It is surprising how much talk goes on without getting right down to the things that will help the fellow who works out in the sun and takes the stings. It looks as if his only hope is to produce honey a little cheaper—and that is some job. We have been trying to decide why the beekeeper who had to sell his honey early and now sees buyers offering a cent and a half more for the same grade of honey, just had to take that loss, for that is what it looks like to him? Guess that it is too deep for us. Lots of nice clouds crossing the sky with little prospects of rain.—L. L. Andrews, Corona, Calif.

TEXAS, December 1.

Weather: November was a distressing month to the beekeepers. As a rule this is the month when fall rains bring into bloom numerous composites which furnish the bees with pollen for brood-rearing and some nectar for stores and ample water for the bees' own consumption. This year the long drouth continued and if anything increased. Only three species of composites, broom-weed, camphor-weed, and yellow top, bloomed. These were so drouth stricken that the collections of pollen and nectar were extremely meager. In many places the absence of water hindered the raising of brood. In the San Antonio district the water supply was the greatest problem for the bees. This, however, was relieved the last day of the month by a quarter of an inch of rain. No winter annuals such as horsemint have appeared. Cenisa, catsclaw, and guajillo, which generally have a sporadic bloom in the late fall, this year failed completely. In fact, many of these plants in their native habitat have died. From reports which have come the commercial beekeepers have been equalizing stores, feeding, and hope to have their bees in good shape next spring.

Miscellaneous: The middle of the month Jas. I. Hambleton, Chief, Division of Bee Culture, United States Department of Agriculture, visited the Laboratory on his return from California.

The Ladies' Auxiliary of the Texas Beekeepers' Association feel honored that Mrs. T. W. Burleson was elected president of the National Auxiliary and Mrs. E. H. Bremer, secretary-treasurer.

During November the queens which have shown themselves the most resistant in the tests made in Iowa and Wyoming arrived at the Apicultural Research Laboratory. Introduction was quite a task due to the extreme drouth and to cold weather. By taking all of the precautions known in the art of introduction, 93% of the queens came through in fine condition and have started laying.

The echoes of the celebration of Honey Week continue to come. One large honey producer reported that he never had sold so much honey in his home town before. In San Antonio the stores which furnished their windows for displays say that the beekeeping displays gave them more trade than a majority of the displays made by themselves.—H. B. Parks, San Antonio, Texas.

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NORTH DAKOTA, December 7.

Weather: The weather has continued unusually mild to date, with the result that colonies intended for cellar wintering still remain out of doors. On a number of occasions of late bees have been in flight, particularly in the afternoons of warm days. It is probable that such activity on their part will result in increased consumption of winter stores.

Usually the ground is frozen to some depth and covered with snow at this time of the season. So far, only a couple of light snowfalls have been recorded this season and the snow melted away quickly by the warm weather which followed. During the past week, maximum temperatures of 65° F. have been recorded locally.

The most disappointing thing in the present situation is the extreme lack of moisture in the soil. It is doubtful, however, if the present lack of moisture will affect the sweet clover plants. Rainfall during early summer got the plants well established, and it is probable that their root system is sufficiently deep to reach the moisture at lower levels in the ground.

Colony Conditions: In general, colonies are well stocked with young bees but are not as heavily provisioned with honey as could be wished. In other sections of the state the situation probably differs considerably because crop conditions were extremely spotted. Yields varied over a wide range.

Recent word from the State Department of Agriculture indicates an average per hive yield of 78.4 pounds, based on a questionnaire return from beekeepers in all sections of the state.

Meeting: The annual meeting of the North Dakota Beekeepers' Association, held yesterday (December 8 at Fargo), was most successful from the standpoint of program and interest shown by beekeepers. Out-of-state speakers included Prof. L. T. Floyd of Manitoba, Messrs. Robert Ray, Paul Johnson and Norris Ellingson of Minnesota. An unusually fine and interesting series of colored motion pictures of beekeeping and travel scenes were shown by Carl and Walter Sundberg, Fergus Falls, Minnesota, in conjunction with the program of entertainment following the banquet. New officers elected include E. H. A. Fischer, President, Grand Forks, North Dakota, and Arvid Benson, Secretary-Treasurer, Fargo, North Dakota.—J. A. Munro, Fargo, No. Dak.

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COLORADO, December 8.

Weather: We are now well into December and should have some cold weather, but the "Old Sol" is doing some extra duty sending out its actinic rays. The warmest weather ever recorded in this part of the intermountain region for December was observed on the 5th of this month when the temperature went up to 78 degrees in the shade. Buds on trees and shrubs are expanding as if spring with its magic wand was here. Robins, tardy in their emigration, are still visitors in our yards. From somewhere along the sunny sides bees are bringing in golden pellets of pollen from dandelions which have been awakened from their short slumber.

This balmy weather may not last long, however, as it is only a few days until the winter officially arrives, and deep drifts of snow and zero weather might be the order. As it now stands, the agriculturists would welcome a good precipitation, and then some more of it to make up for the short measures that we have received during the fall months. The dryness of the soil is becoming very acute. Aside from light rain on the Eastern slope with snow on the mountain ranges little precipitation has occurred this fall.

Market: Earlier this fall most of us were looking forward to better local prices for our honey in view of the short crop, but as the pantries were heavily stocked with sugar as the war broke out, honey in general has suffered. As it now stands, with the price of sugar low, and the sugar bowls still filled, honey will have to dance to the tune of this competitor. This situation will probably change before long. There have been numerous inquiries for beeswax and offers substantially higher than a few months ago have been advanced.

Miscellaneous: A local story runs something like this: Not long ago, a beekeeper on his way to town, was intercepted by a band of gypsies. Sometime later, discovering his billfold on the footboard of his car, he found that twenty-five dollars had mysteriously disappeared. Aided by the law, twenty dollars were retrieved, and the roaming Romani proceeded on their way. As peace had been re-establishd and the beekeeper had a little time to think, he found his "lost" twenty-five dollars safe and sound. With the gypsies gone, well, there was twenty dollars in his favor.—G. A. Pauli, Pueblo, Colo.

SOUTH DAKOTA, December 9.

Weather: It is obvious that if we had had any rain or snow the weather couldn't be classified as delightful. As it is there has been no moisture, seldom any wind, and only a few nights of freezing temperature. Now and then one sees adventurous bees flying as far as a mile from their yards. Occasionally one finds a downy dandelion head glistening in the dried grass. But still we suffer—in dread of cold weather which is likely to come.

Honey Market: The crop was very good along the eastern edge of the state and in the irrigated sections of the Black Hills area in the west. For the most part beekeepers are packing and selling as much as possible of their crop with the result that grocers are well supplied with two or three brands of producers' honey and complaining of draggy sales due to the unusually mild weather. Some of our larger producers, using trucks for distribution, go 150 miles or more is some directions with their honey. For instance, on a recent trip, I was 125 miles from home when a merchant informed me that my neighboring beekeeper had a brand new red pickup with which he was distributing honey. Otherwise, I guess I wouldn't have known it yet.

Prices are a little easier than last year, but holding steady. However, some merchants have been using honey as a leader, in one case selling 10-lb. pails for five cents less than which they paid the producer. Such a situation is deplorable. It not only hurts other merchants, but gives the impression that some producers are cutting prices or selling it at different prices to other merchants. Also, consumers are set to wondering what the world is coming to when they can buy honey for 15 or 20 cents less a pail from a dealer than they can from the producers who are trying to keep the price at a standard level. The worst offenders, though, are a few of the chain stores who sell shipped-in honey under their own label at cut-throat prices.

Miscellaneous: Those who pack bees by the calendar have long since been through with that job. Those who are guided by the weather have as yet found no occasion to get to work. They are waiting somewhat timorously for a cold snap to get them in the proper mood.—J. F. Norgren, Junius, So. Dak.

ILLINOIS, December 2.

Weather: There has been some fine and much needed rainfall in Illinois within the past month, especially in the central and eastern part. To date there has been no bad weather. We have experienced one of the finest falls for several years although we had a severe drouth this fall. The late rains have improved the conditions of pastures and honey plants. Pastures which were burned brown by August, September, and October heat have a new green appearance now.

Crop and Markets: The crop throughout the state was about 50 per cent of the 1938 crop, the southern half having from total failure up to 40 per cent in some spots. The northern half fared slightly better. There were no reports of total failures but some were as low as 25 per cent normal. A very small district reported a normal crop. The weather conducive to nectar secretion was just reversed this past season. Continuous showers during the blooming of the clovers prevented the bees from working. Then later in September and October when one would expect plenty of rain, it was very dry. There was considerable carry-over of the 1938 crop in some localities, but this as well as 75% of the new crop has been moved. This is true of quite an area in the state. Some buyers started out by offering a lower price than paid in 1938 and some sales were made on this very low figure. Later sales have been from ½ to 1 cent per pound over 1938 prices. Comb honey was very scarce. This was especially true of the fancy grades due to short crop and adverse conditions.

Inquiries are more numerous regarding carlot prices. In one large chain store the price on retail sales has advanced. This was noticed in both extracted and comb, the comb price advancing 4c per section. The writer has noticed quite a price range in the 5-pound pail which is selling from 49 to 70c retail. The greatest amount, however, being from 55 to 65c each.

Miscellaneous: Considerable loss will be expected next spring on account of starvation. There was no fall flow in many places and colonies were the lightest in all my experience. Beekeepers failing to reserve enough honey for feed will have to feed considerable sugar. But too many colonies not examined and

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given plenty of honey this fall will not survive to be fed next spring. In my own colonies approximately 5,000 pounds was returned to the colonies which otherwise could have gone to market. The owners of one apiary returned 12,000 pounds to the bees, and they expect to feed several thousand pounds in the spring.

No doubt many will be in the market for package bees, but with their short crop their purchases no doubt will be limited. All district meetings throughout the state were well attended and a spirit of cooperation between the Division of Apiary Inspection and the beekeepers was shown. Also, considerable interest has been shown in various forms of a cooperative market. This interest is not confined to Illinois but reports are to that effect in many states. Some system should be developed to prevent such present-day price cutting, dumping of honey in certain areas, and to keep inferior honey off our markets.—Carl E. Killion, Paris, Ills.

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NEW JERSEY, December 4.

Weather: The latter part of November was extremely mild. Considerably less than normal rainfall has been the rule from early summer until the present time. Wells in a number of places are dry, and have been so for some time, many of which have never been so before. Reservoirs, too, are very low but the surface soil is considered satisfactory for next year's honey plants. Bees were flying here in Caldwell December 1. With the exception of a few flurries, and on November 21 when a part of North Jersey had about an inch of snow, there has been none as yet here this season. Local caterpillar weather prophets predict a minimum amount of snow and cold weather this season, according to the newspaper reports. If correct this will be welcome news.

Honey Crop: The fall honey flow from the goldenrods and asters was generally reported as being from fair to poor. As this followed a short summer crop the net result of the year's total, for most beekeepers at any rate, was considerably below usual. Strangely enough individual beekeepers in both the summer and fall flow districts have reported good crops, the figure of 75 pounds average having been mentioned in several instances. In most localities bees have sufficient stores for winter. There were some exceptions to this latter statement but beekeepers who have not discovered the condition by this time will probably not be the type to make corrective measures now.

Market: Sales, apparently, are somewhat easier to make this season, perhaps due to better business conditions or to smaller crop, who knows? Most New Jersey beekeepers seem to be maintaining their usual sales and usual prices. A number, more energetic perhaps than their fellows, are making out very well indeed. This does not mean that selling honey in New Jersey is as easy as some of our Western neighbors think. It requires real business ability to be successful.

Miscellaneous: Interest in bee pasture improvement seems to be an important factor in modern beekeeping. Mention of *centaurea maculosa* or spotted knapweed in this column in October (p. 638) brought a number of comments and a few requests for seed. In the correspondence, Mr. Charles C. Sharpless of Media, Pa., mentions that wild marjoram is also an European importation much liked by the bees in his vicinity during August. In both of the books on honey plants wild marjoram is mentioned with much favor.

The older residents of New Jersey will learn with regret of the passing of C. D. Cheney on September 29 in his 85th year. In fact, Dr. Cheney's list of friends extended way beyond the boundaries of this state. Prior to the last 10 years he was a familiar figure at all gatherings of New Jersey beekeepers but during the last 5 years he has had no bees. Though he has gone his memory and influence will remain for a long while.

The next big event in these parts will be the annual winter gathering of state beekeepers to be held on January 25th in Moose Hall at Trenton. The speaker of special importance will be Mr. James I. Hambleton in charge of federal bee investigation activities. This is, I believe, the first time Mr. Hambleton has been invited to this state to address beekeepers. All are welcome and all will be well repaid in attending as the speaker has the ability to make his talks very instructing as well as interesting.

Meeting starts about 9:30 A. M. and with time out for lunch lasts until late afternoon. At 6:30 P. M. a honey banquet will be served in the Y. W. C. A. together with an appropriate program for the occasion. Shall I see you there?—John Conner, Caldwell, N. J.

ONTARIO, December 2.

Weather: To date we have had little indication of the near approach of winter. We have had no snow as yet and no cold like we often get in late November. In fact, for the last eight weeks here in southern Ontario we have had fine sunny weather nearly every day. Many farmers are hauling water for their live stock in localities where there are no streams nearby. Yesterday I took a walk with the boys over the fields hunting the big European hares, and I noticed that ploughed land was as dry as chalk and we would sink into the soil when walking on it, so much that it made the going difficult. We crossed a few fields seeded with clover and it appeared to be all right. Of course, at this season of the year a drouth would not affect vegetation the same as in a hot period when the sun is so much more in evidence.

Export Honey Market Active: Since my last notes were sent in there has been a radical change in the honey situation. A month ago no permits had been issued by Great Britain on imports of honey as well as some other commodities placed in the luxury class. About two weeks ago permits were granted and shipments of honey are now going forward as fast as boat space can be obtained. A few days ago about one quarter of a million pounds left on one boat that I know of and no doubt other shipments have been made. If no restriction is placed on export of honey for the next few weeks, no doubt honey will be pretty well cleaned up and I see a real possibility of the price being raised for domestic requirements. Almost daily, for the past five or six days I have received letters of inquiry for carlots of honey that I was unable to supply or locate elsewhere.

Beeswax is in keen demand both from bee supply firms and others who have contracts for war supplies in which leather goods are used extensively.

As to the bees, they appear to be getting along nicely with cool but balmy weather, not quite warm enough to entice them to fly from the hives.

The Toronto Meeting: The 60th anniversary of the Ontario Beekeepers' Association is now a thing of the past. As usual this function was well attended with interest well maintained right up to the closing session. In addition to Ontario speakers on the program we had our good friend, Allen Latham. His addresses as usual were full of useful information, which, coupled with the personal touch that is peculiar to our Connecticut friend, made him a favorite. Of course we had our good editor friend of Gleanings with us and we are loath to class him as a full-fledged American as he was born here in Ontario and his good mother is still living in Lindsay, Ontario.

While the discussions and addresses centered around marketing honey, with the co-operative idea well in evidence, yet much of . practical nature was featured in some sessions. When the report of our Secretary was given including the amount of sugar sold to beekeepers under the permit system and used for feeding bees this past fall, some mild criticism was made of the practice, one speaker stating that feeding sugar threw that much more honey on the market, thus aggravating the marketing situation. We are inclined to think that such a notion is far-fetched as I have figured that all the sugar fed last fall to bees would amount to only about an ounce per capita for Canada, and many of us eat more honey than that every day. We feed sugar when required, for many reasons, and if it is possible to get it each fall we expect to continue to do so. One of our main reasons for doing this is admirably told by Mr. Pettit as reprinted in December issue of Gleanings in an article by Mr. Pease, page 751.

While many of our most progressive beekeepers are using two full-depth hive bodies for wintering thus cutting out most feeding problems, many like myself are not in position to do so as our winter cases will not accommodate that style of hive. After trying out this system of two hive bodies in a limited way, we must frankly confess that we do not like them. We think it makes far more work than working with a single-body brood nest in the spring, that we are apt to get dark honey in our supers if a lot of buckwheat is carried over in the top super of double-story hives, and lastly and most important of all, we think that we get better crops from the single brood chamber system. "Many men of many minds" applies to beekeepers as well as to other callings and we shall continue to respect and in some cases admire the other fellow even if he persists in doing just the opposite to what we think is the correct method, if we see that by so doing he is successful. Too late to wish you all a Merry Christmas, but we do with all the sincerity wish every reader a Very Happy and Prosperous New Year.—J. L. Byer, Markham, Ontario.

XUM

Heads of Grain from Different Fields

Keep the Smoker Clean

Fuel used in bee smokers varies considerably, ranging from paper to rotten wood, depending on the availability of the material. For a long number of years I have been using well-dried coconut husk, cut up into small pieces, and find it very satisfactory; but in the busy season, when the smokers are in daily use, there is a heavy accumulation of carbon not unlike pitch, which is deposited on the inside of the stove and even reduces the bore of the snout. This coat of carbon acts as an insulator restricting the radiation of the heat from the combustion of the fuel and unless removed, results in a hot smoke. Hot smoke of course, punishes the bees unnecessarily, as it is the stupifying effect of the smoke gasses that is required and not the heat. It is therefore worth while to keep the inside of the smoker clean.—K. C. Bose, Demerara, British Guiana.

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Finds Tribe of Honey Hunters

Discovery of a tribe of honey hunters is announced by a missionary in Tanganyika, Africa. The Wagindo men follow the call of the honey bird because it always knows where the bees' hoard may be found. When the native hears the bird's note he drops his spade, leaves his crops and with only his spear and a fire-stick sets out to find the treasure of wild honey. He uses his fire-stick to light a smouldering fire to smoke out the bees, and then cuts down the tree and gathers the hoard. He always leaves grubs of the bees for the bird guide. The Wagindo men have their own hives, which they set in the forest far from beaten tracks, and so hidden that only the owner himself can find them. There is no sale for the honey, but the wax is purchased by traders.—Courtesy of "Family Herald", Grindrod, B. C., Canada.

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Was Stung by Laying Queen

On page 623, October, C. H. Pease says "Do you think mated queens ever sting a person? I don't." I've clipped thousands of queens and on two different occasions, several years ago, was stung by laying queens while clipping them. I was never stung by a virgin, but have not handled as many of them.—H. H. Porter, Baraboo, Wis.

Dry Bee Cellar May Not be Necessary

I don't think a dry bee cellar is as important as we believe. My few bees winter well in my house cellar at a temperature of 30° to 40° and a relative humidity of 83 to 95%. A year ago last winter I carried a four-frame nucleus from November 30 to March 30 with a shrinkage of only 4 pounds and the bees built up well in the spring.—Harry C. Leavitt, Turner, Maine.

[Note: Mr. Leavitt's observations are in line with more recent work in cellar wintering. It used to be said that a temperature between 40° and 50° F. was advisable. At present it is thought that a slightly lower temperature is desirable.—Editor.]

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Customers Want Hive-ripened Honey

All beekeepers, I believe, are interested in obtaining higher prices for honey. A five-pound pail sells here in Colorado for about 50 cents in most stores. I used to wonder just why the selling price was so low. I've kept bees in Massachusetts, Connecticut, New Jersey, and Colorado. I've talked with hundreds of consumers. A large percentage of them object to extracted honey, the product that is offered them, and I think rightly so. Honey extracted before being capped, or honey partially capped, too often is thin, watery, and can not compare in flavor with that allowed to ripen on the hive. By hive-ripened honey I mean that left on until the late fall and the early frosts. It requires more supers and more work to allow honey to remain on the hive until fall. There is the added work of uncapping wholly capped honey. However a better product always brings better prices and there is room for improvement in the product of the hive now being offered.—Roger E. Leonard, Denver, Colo.

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Stung on Lip by Queen Bee

In the October issue, page 622, C. H. Pease asks, if any one has been stung by a mated queen. I have. I clip my queens after they start laying. Unfortunately I did not have my scissors for this queen. The colony was strong. I did not like the idea of looking for her again, so I made up my mind to bite her wing off. When I was biting her wing she let me have it on the lower lip.—Paul Sloboda, Dayton, Ohio.

Asked and Answered

Winter Feed for Bees

Question.—How many pounds of honey or stores should be allowed for an average colony to winter on? When sugar syrup is fed is it necessary to add tartaric acid to keep the syrup from granulating? Would it not be better to feed the bees 5c dark honey?—Francis Rogers, Indiana.

Answer.—You should have at least forty-five or fifty pounds of honey for each colony. Of course, colonies do not require this amount during the winter months, but they need it early in the spring when brood rearing begins. If you have to feed sugar syrup, it will doubtless pay you to use tartaric acid to retard or prevent the granulation of the sugar syrup. Put in ¾ of an ounce of tartaric acid for each 25 pounds of granulated sugar used and add the acid when syrup is being stirred. We would hesitate to recommend dark extracted honey for winter bee food. Sugar syrup would be better, in my opinion. If, however, you do attempt to feed the dark extracted honey, it should be mixed with water in the proportion of 75% honey and 25% water, in order to make it available so the bees may handle it easily.

Balling the Queen

Question.—What is meant by the term "balling a queen"?—Paul Hawkey, Michigan.

Answer.—When a colony of bees balls a queen, the bees form a cluster or ball around the queen and cut off ventilation from the outside, and consequently the queen is suffocated. The bees nearest to the queen attempt to sting her. Balling usually occurs when a queen is released from an introducing cage too soon or when a hive is opened too soon after a queen has been introduced. The queen will begin to run and the bees will follow her and then balling takes place. Occasionally, when a hive is opened during a dearth of nectar, a nervous queen will begin to run and the bees will catch her and start to ball her. The only thing to do in such a case is to catch the queen, put her into a cage with a little candy in the end, so that the queen may be liberated in a short time. Balling of queens is a rather abnormal occurrence. The proper handling of bees helps to obviate this trouble. Queens are more likely to be balled during the off season than they are during a good honey flow.

Strawberries Need Bees

Question.—What effect will a large number of bees placed on the edge of a strawberry patch have on the development of the berries?—F. Carter, Minnesota.

Answer.—You should have bees near your strawberry patch, as bees are required for the proper pollination of the strawberry. A part of the flowers are perfect or hermaphrodite, and part pistillate. As the latter are more productive, they are given the preference in cultivation. It would do no harm to have a good-sized apiary near your strawberry patch.

Wintering in Open Bee-House

Question.—I have packed my bees in burlap bags in the open bee-house and hope they will do well. All four hives are in two-story hives this fall and I think they are well-provided with honey.—Cordelia J. Stanwood, Maine.

Answer.—Regarding your bees which you have packed in burlap in an open bee-house we assume that the side or end of the bee-house is open to the outside so that the bees can fly easily from their hives to the out-of-doors. If the bees are allowed to fly through a window, or small opening, this may not work out so well. The trouble is that when bees get outside during a warm spell in winter they may not find their way back into the hives through a small opening. An open shed or building, with the opening to the east or south works out quite well. It is an advantage, however, to have the hives separated a few feet so that the bees may not drift from one hive to the other.

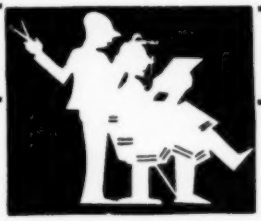
Building a Bee Cellar

Question.—I would like to have information on building a bee cellar for wintering bees and the ventilation of same; also what time of year to put bees in the cellar and what time to take them out in the spring?—Leslie Heath, Maine.

Answer.—You can build a bee cellar by digging a hole in the side of a hill, facing South or East. If the soil is porous, all the better. The dirt may be retained by using perpendicular cedar posts. The ceiling of the cellar should be water-proof and below the frost line. There should be at least one ventilator, about 6" x 8" and ten or twelve feet high, leading from the ceiling of the cellar out of doors. It is an advantage to have an inner door, also an outer door leading to the cellar, with a small vestibule between. The temperature of the cellar should range between 38 and 46 degrees Fahrenheit throughout the winter. Bees should be placed in the cellar about the latter part of November, after the last good cleansing flight. They should be removed in the spring, usually during April when the first pollen is obtainable.

XUM

Just News



On October 17, 28 beekeepers of Passaic County (New Jersey) met in the office of County Agent Fawcett at Paterson to consider the formation of a branch of the New Jersey Beekeepers' association. After considering all angles of the project the meeting adjourned to come together again on November 14. This was done and plans completed. Mr. C. D. Vreeland, Little Falls, was chosen chairman and Mr. O. Urbach, 73 No. 11th St., Paterson, Secretary-Treasurer. Regular meetings are to be held the first Tuesday evening of the month, in the County Agents offices in the Court House at Paterson.—Elmer G. Carr.

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We will again hold the Wabash Valley Round-Up this coming fall. It will be bigger and better than ever. —L. R. Steward, Newport, Ind.

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At the annual meeting of the Colorado Beekeepers' Association held in Denver on November 21, the following officers were elected for the coming year: N. A. Olson of Las Animas, President; J. D. Caldwell of Rifle, Vice President, and L. R. Rice of Greeley, Secretary - Treasurer. The next annual meeting will be held at Grand Junction the fourth Tuesday in October.

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Mr. and Mrs. Frank W. Jones, Bedford, Quebec, of the F. W. Jones & Son Bee Supply Mfg. Co., founded 61 years ago, celebrated their golden wedding anniversary on December 2. The couple were presented with a gold-lined silver fruit bowl from the employees of the Company.

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The Pennsylvania State Beekeepers' Association will hold a meeting on January 17 and 18, in Room D, Farm Show Building, in Harrisburg. The opening session will be at 9:30 A. M., the morning of the 17th. The main speakers will be Richard C. Lightner, Vocational Education Adviser; C. E. Burnside, Associate Apiculturist of the U. S. Bureau of Entomology, and H. B. Kirk, Acting Apiary Inspector. The afternoon session opens at 1:30, at which session the principal speakers will be H. C. Diebert, E. J. Anderson, and George J. Abrams. A business meeting will follow. Wednesday evening will be a turkey dinner at 6:30, at the Sixth Street United Brethren Church, Harrisburg. Speakers and illustrated pictures will be featured. Thursday morning addresses will be given by Mrs. A. B. McHenry, C. E. Burnside, Harry W. Beaver, and D. C. Babcock. In the afternoon George J. Abrams, Walter Severson, and A. T. Keil will speak.

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The Western N. Y. Honey Producers held their annual meeting on Saturday, November 18, 1939, in Batavia. Analysis of the Cuban honey being sold in stores at high prices show that it is inferior to our clover honey, but is advertised to cure nearly every ailment. Discussion of the color of our clover honey disclosed the probable cause,—bees working on the other flowers when clover is in bloom, also possibly the nectar is darker when secretion is slow. Mr. A. C. Gould, Chief Apiary Inspector, said the clover honey of the south is very dark. Also the water white honey of Northern N. Y. is disappearing, which is caused by wild mustard gradually increasing and coloring the nectar. Mr. Gould also said that the State was more thoroughly inspected this year than ever before. Mr. E. T. Cary of the A. I. Root Co. of Syracuse, said that the Department of Agriculture and Markets is trying to educate the honey producer to properly pack his honey for N. Y. State. —G. E. Morris, Secretary.

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The Idaho State Honey Producers' Association held its annual meeting November 17 and 18, at Idaho Falls. Among the speakers were Paul T. Rowell, M. S. Stone, C. F. Feeler, Frank Beach, Sr., Jay Redfield, Frank Beach, Jr., Kennedy Stewart, O. S. Cox, Clyde Ault, Irving Powers, and Earl Miller. A Ladies' Auxiliary with Mrs. Sam Nealey chairman, was organized to promote honey publicity. Officers for 1940 are: President, Robert E. Miller; Vice-President, Clyde Ault; Secretary-Treasurer, Frank Beach, Jr. The 1940 meeting will be held in Twin Falls, Idaho.

John G. Paton, President of The John G. Paton Co., Inc. and the Paton Corporation, and treasurer of Honey Packers, Inc., at 630 Fifth Avenue, died on December 6 at the age of 77. He was one of the world's largest honey and maple sugar dealers and distributors. Born in California, Mr. Paton spent his early life in that state, becoming associated with the Johnson Locke Mercantile Co., of San Francisco. In 1904 he came to New York to take charge of the firm's business here. In 1908 he left that organization and formed his own business dealing mainly in honey and maple sugar products.

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The January meeting of the Middlesex County Beekeepers' Association will be held at 7 P. M. on Saturday the 27, at 19 Everett St., Concord, Mass. Mrs. Hildreth will be in charge of a meat-loaf supper featuring local comb honey on honey bread, and honey gingerbread with honey sweetened whipped cream. The speaker will talk on "Comb Pest Control" and "Home Grown Queens". —Arthur M. Southwick, President.

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The Kentucky Beekeepers' Association will hold its annual convention at Lexington on February 1. This meeting will be in connection with the program of the Farm and Home Week. Dr. W. E. Dunham of Ohio State University will assist with the program. A cordial invitation is extended to all beekeepers to attend the session.—W. A. Price, State Entomologist.

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The annual election meeting of the Cuyahoga County (Ohio) Beekeepers' Association will be held at Shaker Heights City Hall on Sunday afternoon, January 21, at two-thirty. Copies of Dr. Beck's book "Honey and Health" have been purchased by the Association and will be made available to members at this meeting. —J. M. Miller, Secretary.

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The winter meeting of the Virginia State Beekeepers' Association will be held in Richmond, Virginia, at Hotel John Marshall on January 11.

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The Delaware State Beekeepers' Association will hold its third annual meeting at the Grange Hall in Georgetown, Delaware, on January 6. The meeting will be called to order at 10:30 A. M. Mr. Edwin J. Anderson, Extension Apiculturist of Pennsylvania, will be the principal speaker on the program. The subjects of Transferring Bees to Modern Hives and Swarm Control will be discussed. The Delaware Crop Improvement Association meets in Georgetown at the same time and the beekeepers plan to have a honey exhibit along with the exhibits of the Crop Improvement Association.—John M. Amos, Secretary.

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The Indiana Winter Beekeepers' Short Course will be held January 9 to 11 under the auspices of Purdue University, Agricultural Station, J. J. Davis, Chief in Entomology, in the Lafayette, Indiana Agricultural Building, Room 103. Among the speakers are Roy Bush, Lafayette; D. R. Stephens, New Richmond; W. R. Bielfield, Terra Haute; Homer Godwin, Emison; C. A. Jelliff, Portland; Arba Brutus, Pine Village; J. E. Starkey, Chief Apiary Inspector; L. R. Stewart, Newport, and M. J. Deyell, Editor of Gleanings in Bee Culture, Medina, Ohio.

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The Idaho State Honey Producers' Association tenders the following resolution:

"Be it resolved, that at this 1939 Annual Meeting of the Idaho State Honey Producers' Association, held in Idaho Falls, Idaho, this day of November 17th, that we go on record as favoring a program to be put into effect by the American Honey Institute and the American Honey Producers' League, to wit: That they, at their early convenience, make every effort to take up the matter of individual State Regulation and restriction of honey in which, in many cases, are retarding the free movement on this product in Inter-State Commerce.

"That the American Honey Institute and the American Honey Producers' League take up this matter with all state associations, and request that they lend their immediate support to adoption of a uniform United States Department of Agriculture Regulations regarding honey.

"We feel that with the cooperation of the United States Department of Agriculture, and of various State Honey Producers' Associations, the Institute and the American Honey Producers' League will accomplish much along this line and the foundation laid for an advertising campaign for moving honey."

XUM

The Toronto Meeting

M. J. Deyell

A complete report of all the talks and papers, not to mention reports, resolutions, and business of the Diamond Jubilee Convention of the Ontario Beekeepers' Association meeting held November 28-30, would fill a small book. It seemed fitting that this 60th Anniversary meeting be held in the Crystal Ballroom of the "Royal York", the largest hotel in the British Empire.

Some of the excellent papers given will doubtless appear later in Gleanings as well as in the Canadian Bee Journal. Just a few high-lights of the convention will be mentioned here.

At the beginning of the opening session the President and chairman, H. O. White, asked Morley Pettit to give a brief review of the first minutes of the Association. These were written 60 years ago by Wm. Couse, who, by the way, is the only living charter member of the Association.

Mr. and Mrs. William Couse of Streetsville, Ontario. Mr. Couse is the only living charter member of the Ontario Association.

Mr. Couse has had a marvelous experience during the years. He was intimately associated with D. A. Jones of Beeton, Ontario, who did so much for beekeeping in Canada and who accompanied Frank Benton on his tour through Europe in the eighties. The success of the Ontario Association is due, in no small measure to the untiring efforts of Mr. Couse and his loyalty to the organization. He is some eighty years young. During the past season he and his good wife visited the San Francisco and New York World's Fairs. Our hats off to the Couses.

Dr. E. J. Dyce, provincial apiarist, who has the faculty of remaining in the background most of the time, yet whom we know is one of the moving spirits of the organization, in his annual report mentioned, (1) that honey is being used in soldiers' rations, (2) there have been 24 broadcasts on honey during the year, (3) earlier spring apiary inspection is being done to avoid spread of AFB through robbing, and, (4) less than 3% infection was found this past season. Disease is being held in check.

Wm. R. Agar reported on progress being made in the central packing plants of Western Provinces, Manitoba, Saskatchewan, and Alberta, putting up honey in crystallized form in attractive lithographed pails, which is acceptable to the Canadian consumer. (Will we ever come to that in the U. S. A.? Time will tell. We have a lot to learn about marketing honey in this country. If you don't think so, visit Canada.) Their per capita consumption of honey is almost three pounds. Ours is a little over one pound. Why? It's a story too long to tell here. It may appear later.

S. M. Deschenes of Montreal, Assistant Provincial Apiarist of Quebec, described their recently established central packing plant, quite similar to those in other provinces. Ontario was the first province to have a honey packing plant.

T. H. Shield, head of the Ontario Honey Producers' Co-operative and Packing Plant, outlined recent developments on the honey market, the recent embargo on Canadian

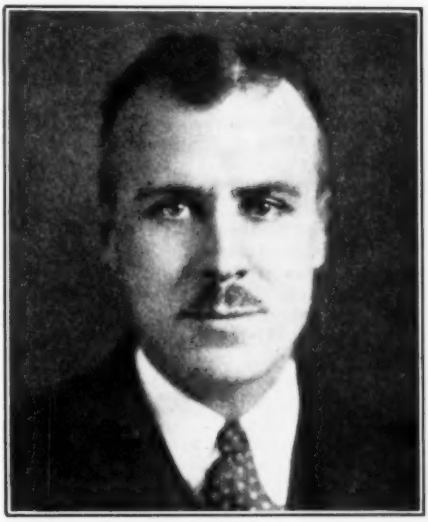
honey to Great Britain, which is now lifted and has resulted in a decided strengthening of the market. Mr. Shield said, in closing, **"We are not faced with over-production, but under-consumption".**

Allen Latham, veteran beekeeper and queen breeder of Norwichtown, Conn., made us realize how little we actually know about queen rearing. Mr. Latham met Henry Alley, the noted queen breeder who started baby nuclei mating boxes, also George Doolittle who gave us the present method of grafting cells. Latham said that, (1) thin and not thick sugar syrup should be fed, because this is comparable to nectar, (2) small queen mating boxes seem preferable, (3) abnormal supersedure may be caused by queens mating during cool weather, (4) queens may be injured in mail sacks, (5) abundance of pollen is necessary for producing good queens, and, (6) middle-aged or older bees are better than young bees for accepting grafted cells and cell building.

C. A. Jamieson, Bee Division, Ottawa, in speaking on "Nectar Secretion of the Milkweed Plant", said that (1) it depends solely on insects for pollination, (2) it secretes a larger amount of nectar in the forenoon with lower sugar content and a smaller amount in the afternoon with greater sugar content, (3) as humidity increased concentration decreased, and, (4) it requires approximately 311 milkweed plants to produce enough nectar for one pound of honey with 17% moisture content.

G. F. Townsend, Research Assistant at Ontario Agricultural College, Guelph, has experimented with methyl bromide, proxate and chlorasol, for wax moth control. He prefers methyl bromide because, (1) it works in hot or cold weather, (2) is not inflammable, (3) does not stratify, (4) the cost is low, and, (5) it is not nearly so dangerous as some other chemicals and leaves no odor or taste.

Morley Pettit in his talk on "package bees and queens" mentioned some of the shipper's and receiver's problems. Producing and shipping bees and queens is not all sunshine nor does the receiver have a path of roses. When installing packages Mr. Pettit prefers feeding warm syrup by painting it on the wire screens until the bees are gorged, then



Dr. E. J. Dyce, Provincial Apiarist, at Ontario Agricultural College, Guelph, Ontario.

dumping the bees out of the cage into the space left in the side of the hive, beside the combs. The queen is released immediately among the bees. By this method the queen starts laying earlier than she would if left in an introducing cage to be released by the bees.

C. B. Gooderham, Dominion Apiarist at Ottawa, talked on, "Some Methods of Supering Colonies". Experiments conducted during the past eight years show that of all the methods tried, top supering is preferable and resulted in slightly higher per colony yields of surplus honey. But the main advantage with top supering is the saving in time and labor which is the big item in business today.

I talked with a number of commercial honey producers who said that since adopting the top-supering method they are able to cut their labor way down and they can now operate more colonies.

Well, it was a wonderful convention. The program committee is to be congratulated. Also, a word of commendation is due H. O. White, Chairman and retiring President of the Ontario Association, for the orderly manner in which he conducted the various sessions of the convention.

Allan T. Brown, of Peterboro, Ontario, first vice-president for 1939 was elected President for 1940.

XUM

Talks to Beekeepers

M. J. DEYELL

Telling Salesmen About Bees

One evening a few years ago while in the lobby of a hotel, I got into conversation with two traveling salesmen. They asked me about my work. When I told them that I was interested in bees and honey they appeared to be rather amazed. They could hardly conceive of such a business. One of them told about his grandfather handling bees with his sleeves rolled up, without a net over his head, and never being stung. Many of you have heard this old classic.

Those two salesmen seemed anxious for information on bees and honey; in fact, they fired questions at me until one o'clock that night. The following morning I saw one of the men in the coffee shop and he said to me, "Say, I can't forget what you told us about bees and honey last evening".

These salesmen are typical of thousands of people who are casually interested in bees and honey, some of whom, after learning about beekeeping possibilities, decide to launch out into the business on a moderate scale at least. Some of our most successful commercial beekeepers started with one or two hives of bees and gradually grew into beekeeping on a larger scale.

A Difficult but Pleasant Task

Because of the thousands of beginners, as well as more experienced beekeepers, who become readers of Gleanings each year, it has been customary for quite a number of years to conduct these Talks. This will make my seventh year of writing them. While I enjoy this part of my work it is my most difficult assignment; because it isn't easy to tell people all over the world exactly how to handle bees successfully. In fact, it is practically impossible, due to the variety of conditions that prevail.

If I can help readers of these talks to a better understanding of the principles that govern success in producing and marketing honey, my efforts will not have been in vain. If the principles of beekeeping are well understood, beekeepers with average ability in various parts of the world can work out methods of management that will apply to their respective localities.

In these talks I shall try to use simple understandable language and to avoid a stilted style. As you have already observed I am writing in the first person, because, for me, it permits of a freer expression. Readers who have followed these talks in past years may note some repetition from time to time. To avoid this I shall try what preachers and lecturers frequently do,—dress up old ideas or principles in a new garb.

In the U. S. A., according to the Bureau of Agricultural Economics, there were 4,402,550 colonies of bees in 1936. The average yearly production of honey for seven years, 1930-1936, was 163,191,157 pounds, which is a little over one pound per person in this country.

According to the March, 1939, monthly bulletin of Agricultural Statistics from Ottawa, Canada, for 1938, there are 393,900 colonies in that country with an average yearly honey production of around 27,000,000 pounds which is between 2½ and 3 pounds per capita.

If it is a fact, as some authorities say, that 85% or 90% of the nectar secreted goes to waste annually for the lack of bees to gather it, it would seem that one of our greatest needs is more bees.

And if it is a fact, as stated by some, that bees are fifteen more times valuable for pollination of fruits, legumes, and vegetables than for honey production, it seems very probable that many more bees will be kept for pollination purposes in the near future than at present to insure maximum yields.

With this brief prelude or introduction, may I suggest that you acquire as much reading matter as possible, reliable bee books, bee journals (more than one, if possible), also a bee supply catalog, for reading during the long winter evenings?

I know we are going to have an enjoyable time together during the coming months and I want you to feel free to write me if I fail to make matters perfectly clear.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 10th of month preceding.

HONEY FOR SALE

NEW CROP clover extracted honey. H. E. Crowther, Cass City, Mich.

FANCY clover honey, case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FINE quality amber extracted honey. Harry Spooner, Stephens, Arkansas.

CHOICE clover-basswood honey in new 60's. Noah Bordner, Holgate, Ohio.

BUCKWHEAT honey, 6c per lb. in sixties. Dearing Bros., Kenmore, N. Y.

LIGHT clover extracted. New 60's. The Jones Apiaries, Sauquoit, N. Y.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

WHITE CLOVER honey in 60's. MacMullen-Lyman Apiaries, Greenwich, N. Y.

FRANK RASMUSSEN, Greenville, Michigan. Fancy comb and extracted honey.

FINE clover honey, case or car. Leslie A. Davis, R. R. 2, Union City, Ind.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

WHITE CLOVER and buckwheat honey in 60's. Greulick & Son, Scotia, N. Y.

'39 CROP clover and buckwheat honey. Scribner Hill Apiaries, Ionia, N. Y.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, O.

BEST clover extracted. New 60's, case or ton lots. Irvin VanDevier, Medina, Ohio.

CLOVER comb and extracted. Quotations on request. Howard Grimble, Holcomb, N. Y.

MICHIGAN's finest well-ripened white honey in new 60's. Jay Cowing, Jenison, Mich.

FOR SALE—Fancy Iowa white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

NEW CROP white extracted in new sixties. Case or carload. Harry C. Kirk, Armstrong, Iowa.

CHOICE clover honey. New 60's, sample, 10c. Martin's Apiaries, Exchange St., Owosso, Mich.

ONLY small quantity amber and buckwheat left. Cheap. Emery Horton, Holcomb, N. Y.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

FINEST CLOVER extracted, case or carload, new 60's. Roediger Apiaries, Kettlersville, O.

MICHIGAN clover honey in new cans and new cases. The Hubbard Apiaries, Onsted, Michigan.

FINEST white extracted, 7c; last year's white, 6c. Light amber, 6c. N. B. Querin, Bellevue, O.

EXTRACTED 1938 and 1939 clover. Quotations on request. Scott Traxler, Scottsburg, N. Y.

MICHIGAN'S finest clover honey at 6c a pound. W. J. Colebrooke, Opdyke & Pontiac Rd., Pontiac, Michigan.

FOR SALE—White and light amber extracted. Small glass and pails. Roscoe F. Wixson, Dundee, N. Y.

WHITE CLOVER extracted honey in 60-lb. cans. State amount wanted. Leonard S. Griggs, 711 Avon St., Flint, Mich.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

FANCY white clover extracted honey, can or carload. Price on request. Sample 15c. Jos. H. Hoehn & Sons, Ottoville, Ohio.

FOR SALE—20 tons white extracted. Will deliver in truckload lots. Robert Case, 156 West Avenue, Canandaigua, N. Y.

CLOVER HONEY—Fancy, choice amber; goldenrod, mixed and buckwheat. Write for prices. Lavern Depew, Auburn, N. Y.

WHITE and amber clover, also buckwheat in kegs and cans. Sample 10c, deducted from cost. Coggshall & Son, Groton, N. Y.

LIGHT amber, and amber honey, in new 60-lb. cans. Buckwheat in 60's and 160-lb. kegs. Harry T. Gable, Romulus, N. Y.

COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

RASPBERRY and clover, blended by the bees in 60-lb. cans for 8c a lb. Sample for 20c. Elmer Hutchinson & Son, Lake City, Mich.

CHOICE Northern New York clover honey in new 60's and 5-lb. tins. Send for sample and price. A. A. French & Son, Theresa, N. Y.

SELECT LOTS white sweet clover, also processed white honey in 60-pound tins. A. I. Root Co., 224 West Huron Street, Chicago, Ill.

CHOICE white sweet clover, also extra light amber honey in new 60-pound tins by the case or carload. Dadant & Sons, Hamilton, Illinois.

WE BUY AND SELL ALL KINDS COMB and extracted, carloads and less; also beeswax. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

CLOVER HONEY—White, choice amber and amber in new 60's, 5 and 10 lb. pails; buckwheat in kegs and 60's. H. B. Gable, Romulus, N. Y.

FOR SALE—Finest quality white clover honey in new and used containers. Also light amber and buckwheat. Address, Oscar H. Schmidt and Sons, makers of Schmidt's Economy Foundation, R. F. D. No. 4, Bay City, Mich.

XUM

Package Bees and Queens

For improved service we have moved from Brookfield to Willacoochee, Ga. Our shop and office are just across the street from the Railway Express and Western Union Telegraph Office. The Post-office is only 60 yards away. Here we have the service of two railroads instead of one.

Write for our 1940 prices. If you forget Willacoochee write Brookfield and your letter will reach us promptly.

W. O. GIBBS
Willacoochee, Ga.

Happy New Year

We wish to thank the readers of the Gleanings for the splendid business given us during 1939.
Quality and Dispatch will feature our 1940 service.
Every order, big or little, will receive our most careful attention. We urge you to book orders in advance of shipping date. However, we were able in 1939 to ship all late orders in 24 hours of date received. All others went out on exact dates ordered. We will strive to repeat this in 1940.
Prices will not be high.

Sullivan Wright & Co.
Gilbertown, Alabama

Quality-Bred Italian Bees for 1940

Better prices on several thousand packages of bees with queens if booked now, act quickly. We are now booking orders for spring delivery.

YORK BEE COMPANY
Jesup, Georgia
(The Universal Apiaries)

NEW YORK STATE buckwheat honey, in 160-lb. kegs, 120-lb. cases, any quantity. Price and sample on request. E. L. Lane, Trumansburg, N. Y.

FOR SALE—Extra to water white sweet clover honey in sixties, case or car; also Spanish needle honey. Joe C. Weaver & Sons, R. 3, Springfield, Mo.

CLOVER, buckwheat honey, 5, 8, 16, 32 ozs., 2½ and 5 lb. pails. 60-lb. cans. Would buy clover comb honey. J. Scarff, 210 Lincoln Ave., Syracuse, N. Y.

NO. 1 to fancy light comb honey, $2.75 per case; No. 2 and amber, $2.25; in window cartons, 25c extra. Extracted, 6c lb. in 60's. H. R. Shelton, Parma, Mich.

GOOD clover extracted in 60's, 6c; light amber, 5½c; dark, 5c; No. 1, weight comb, $3.00 per case; culls, $2.25 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Co., 1360 Produce St., Los Angeles, California.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

OUR NEW CROP Michigan clover honey is now ready for the market. New cans and cases. Let us contract with you for your season's supply. None better. E. D. Townsend & Sons, Northstar, Michigan.

COMB HONEY. No. 1 clover, $3 case; No. 1 amber, $2.50; dark amber, $2; Fancy buckwheat, $2.50; No. 1, $2; 1938 comb at low price; clover extracted, 7c; amber, 6½c; buckwheat, 6½c. C. B. Howard, Geneva, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

WANTED—White extracted honey, large or small lots. Roscoe F. Wixson, Dundee, N. Y.

WANTED—White and light amber extracted honey. George Eykamp, Cuyahoga Falls, Ohio.

WANTED—White and amber extracted honey in new 60's. Alexander Co., Rt. 3, Toledo Ohio.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 712 Kossuth St., Columbus, O.

WANTED—Bees and used hives. Comb and extracted honey. W. March, 12801 Woodland Ave., Cleveland, Ohio.

WANTED—Light honey in ton lots; dark honey in 500-lb. lots. C. L. Duax, 3414 S. Western Ave., Chicago, Ill.

WANTED—White and amber extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

WANTED—Carlots honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—Comb, chunk comb, white and light amber extracted honey. Any amount. Central Ohio Apiaries, Millersport, Ohio.

HIGHEST cash returns made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Ky.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wis.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Apiaries, 12213 12th St., Detroit, Michigan.

FOR SALE

WANTED—Used queen excluders. State price. Ernest Sires, Stanfield, Ore.

QUEEN PAINTING OUTFITS, $2.00 postpaid. Southwick Apiaries, Waban, Massachusetts.

BRANDING irons for hives, equipment and implements. Made to order. John Conner, Caldwell, N. J.

FOR SALE—Back numbers of Gleanings and American Bee Journal. Ralph Stewart, Carrier 13, Muncie, Ind.

WAX worked into high quality medium brood foundation 15c pound, 100 lbs. $11.00; thin super, 22c. Fred Peterson, Alden, Iowa.

WRITE FOR CATALOG. Quality bee supplies at factory store prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Onsted, Michigan.

ATTRACTIVE prices on bee supplies and comb-foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

FOR SALE—In California, long established, profitable honey bottling business. Retiring. Would trade for bees. Pay cash difference. Box A, Gleanings, Medina, Ohio.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. E. S. Robinson, Mayville, N. Y.

CARTONS for cut Comb Honey. New attractive designs with your name and address. Low prices. Fast service. Samples on request. May Carton Co., Box 257, Traverse City, Michigan.

PINARD nailless queen cage. Agents: Diamond Match Company, Los Angeles and Chico, California; Weaver Apiaries, Navasota, Texas. Samples. A. B. Pinard, 810 Auzerais Avenue, San Jose, California.

FOR SALE—Fine quality queen mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Michigan.

HONEY JARS—We would appreciate an opportunity to submit FREE samples on our attractive line of modernistic Jars and Round Cylindrical Honey Jars. We will quote you through our nearest supply jobber. Foster-Forbes Glass Company, Marion, Indiana.

FOR SALE—You will make a big cash saving by letting us work your wax into either plain or wired foundation. Send us a list of your needs for our lowest, early order discount prices. We manufacture a complete line of bee supplies. WALTER T. KELLEY CO., Paducah, Ky.

BEES AND QUEENS FOR SALE

ITALIAN QUEENS. W. G. Lauver, Middletown, Pa.

SILVER RUN QUEENS are sterling. Try them. W. E. Streetman, Midland, Ga.

FOR SALE—40 Colonies of bees. State Inspected. Jackson Wesley, LeRoy, Illinois.

CHOICE untested Italian queens, 50 cents. WHITE PINE BEE FARMS, ROCKTON, PA.

Ideal Package Bees & Queens

May we help you make 1940 a successful season, by furnishing you package bees and queens.
We ship all orders on dates wanted. Service and satisfaction, our Motto.
Three-lb. pkg. bees with queens $3.15
Two-lb. pkg. bees with queens 2.45
Mated Italian Queens ..... .75

The Ideal Apiaries

Wiggins **Mississippi**

Queens and Package Bees

CAUCASIANS * ITALIANS
Over 25 Years' Experience
RIO GRAND VALLEY
HEADQUARTERS for TRUCKERS
On Weslaco Progresso Highway

Paying 30 cents a pound for Beeswax in exchange for Bees and Queens. Queens, 75 cents each. 2-lb. pkg. bees with queen, $2.45 each; 3-lb. pkg. with queen, $3.15 each. One of our customers took 1620 queens on one truck at one time last spring to North Dakota.
We do lots of trading. What have you?
WANTED HONEY. Send sample.

Blue Bonnet Apiaries

R. 1. Box 70, Mercedes, Tex.

Honey Wanted

Carloads and less lots. Send sample—write how packed and quantity—and lowest price delivered N. Y. City.

HONEY PACKERS INC.
Packers of Hoffman's Honey.
630 Fifth Ave., New York, N. Y.

Carniolans Caucasians

Prolific, very gentle, winter well, build up rapidly, wonderful workers. Ask for free paper. Queens and packages in season.

ALBERT G. HANN, Glen Gardner, New Jersey.

Prosperity

Wishing each and every one a very prosperous 1940.

To Be Prosperous: Your package-bees should be young. We shake bees from all colonies every ten days, hence practically all young bees.

Queens must be properly reared and should not be caged 15 days in dry cages before shipment is made. I certainly would not want my queens treated like this. Therefore our queens are caged just a few hours before shipment is made.

We seldom have a complaint of our queens being superseded.

All queens are guaranteed in every way to be as good as any at any price. Light cages. No disease. Safe arrival and perfect satisfaction guaranteed.

The Crowville Apiaries
Rt. 1. Winnsboro, La.

Italians Caucasians

Queens * * Packages * * Nuclei

Our strain of bees and our service is second to none. Write for prices.

Weaver Apiaries
Navasota, Texas

Loose-Queen Packages

If you are in the market for package bees in 1940, and want the best for your money, then you owe it to yourself to try our loose-queen packages. We can't satisfy our customers now with anything else. They are so easy to install and the queens ready to begin laying, our customers want nothing but loose queen packages.

3-lb. pkg., $3.15; 25, 5% dis.; 50, 10% dis., 100, 15% dis.
2-lb. pkg., $2.45; 32, 5% dis.; 64, 10% dis.; 129, 15% dis.
Queens, 75c each; 50, 10% dis.; 100, 15% dis.

Taylor Apiaries, Luverne, Ala.

CAUCASIAN package bees and queens. Booking orders now for 1940 delivery. Lewis & Tillery Bee Co., R. 4, Box 132, Greenville, Ala.

CAUCASIAN Package Bees. Booking orders now for 1940 delivery. P. B. Skinner Bee Co., Greenville, Ala.

BEES FOR SALE—35 strong colonies. No disease. State inspected. H. W. Coley, Sarasota, Florida.

YES, SIR, WRITE for 1940 special price on package bees and queens. Address, Hessmer Bee Farm, Hessmer, La.

FARM with good buildings and 23 colonies of bees, guaranteed free from disease. Wm. Ludwig, Rt. 2, Marion, Ind.

ITALIAN queens. N. J. Experiment Station stock, selected, carefully reared, 75c each. Circular. E. G. Carr, Pennington, N. J.

FOR SALE—400—10-frame colonies, extracting supers, excellent condition. Guaranteed no disease. Ernest Sires, Stanfield, Ore.

YOUNG ITALIAN QUEENS for winter and Spanish customers. Queens shipped anywhere any time. D. W. Howell, Shellman, Georgia.

THREE-BANDED Italian bees and queens. Let us book your order for 1940 spring delivery. Alamance Bee Company, Graham, N. C.

$3000 value business. Bees, equipment. All only $950. Guaranteed no disease. Write for full particulars. Frank Detwiler, Conway, S. C.

ILL HEALTH compels me to sell my bees and modern equipment. Bees guaranteed free from disease. Wm. J. Martin, Exchange St., Owosso, Mich.

CAUCASIANS, MILLER BROTHERS, Three Rivers, Texas, Oldest exclusive Caucasian breeders west of the Mississippi. Packages with queens introduced. Write for Circulars.

MY CARNIOLANS, queens and package bees, satisfy better. Gentler bees, whiter combs, more honey. Booking orders now. EPHARDT'S HONEY FARMS, LULING, LOUISIANA.

FOR SALE—100 hives of bees, guaranteed no disease. Plenty of honey, young queens. Good hive with three supers, $10.00. Can deliver via truck for small charge. Paul Kendall, Bolton, N. C.

PETERSON'S PACKAGE BEES: Italian or Caucasian loose queens if wanted. Nucleus, also colonies. Combless package with queen, $1.50 upward. Further information on request. Honey Bee Apiaries, Sandwich, Ill.

PACKAGE BEES, ITALIAN OR CAUCASIAN. Choice of loose or caged queens. Express or Parcel Post. Try us. We solicit your patronage on the merits of quality, service, and price. CRENSHAW COUNTY APIARIES, RUTLEDGE, ALA.

(THE CHEAPEST)—The best is always the cheapest. Green's queens with **character** are priced very reasonable, quality considered. They will please **you** as they have pleased hundreds of others. Start shipping about March the first. D. P. Green, Deland, R. 2, Fla.

JENSEN'S Package Bees and Queens. Service Unexcelled. Lowest Express charges. A postal brings our 1940 price list, etc. Let us quote you on your requirements, whether large or small. 26 years' queen breeding experience behind our "Magnolia State" strain Italians. Won First Prize, Minnesota State Fair in 1939. Satisfaction assured. Our files contain many expressions of satisfaction, unsolicited. Jensen's Apiaries, Macon, Miss.

QUALITY ITALIAN bees and queens. Place your order where you get the quality in the queen. B. A. Anderson, Opp, Ala.

SEVERAL hundred colonies in ten-frame hives, good locations go with sale. J. A. Simmons, Box 1158, San Antonio, Texas.

HELP WANTED

EXPERIENCED queen breeder. Sober, reliable and good worker. N. B. Smith & Co., Calhoun, Ala.

WANTED—Young, single, experienced beeman with clean habits. Must be able to drive truck. Paul Wilson, Westwood, Calif.

WANTED—Experienced queen breeder, must be able to manage large queen rearing yards. Give references, wages desired, age and full particulars. J. E. Wing, Cottonwood, Calif.

HELP WANTED—Experienced man in in large bee business. Manager capable of taking charge. Preferable with wife who could cook for the help. Also two helpers wanted. Good opportunity for suitable help. State particulars in full. M. E. Ballard, Roxbury, N. Y.

POSITION WANTED

EXPERIENCED beekeeper wants work till April. Box 3, Gleanings, Medina, Ohio.

WANTED—By experienced beekeeper, age 30, position as apiary manager or would consider operating large apiary on share basis. Fred Lammers, 334 West College Avenue, Appleton, Wisconsin.

MISCELLANEOUS

WANTED—100—2-lb. packages with Italian queens the first part of May. Give lowest price. Paul Znech, Breckenridge, Minn.

WANTED—To contact retiring beekeeper who desires to sell out. Fair terms. give details. Wm. D. Osborne, Jr., Middleboro, Massachusetts.

BABY CHICKS

MAKE MONEY with poultry. Read America's leading poultry magazine for latest information. Three years $1.00; nine months 25c. Poultry Tribune. Dept. C52, Mount Morris, Illinois.

DAIRY GOATS

DAIRY GOAT JOURNAL, Dept. 919A, Fairbury, Nebr., (monthly magazine, $1.00 yearly) gives complete information. Introductory 6 months, 25c. Literature FREE.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly 7c.6d. Apply Editor, Indian Bee Journal. Jeolikote, Dist. Nainital, U. P. India.

"WATCH MICHIGAN." Read the MICHIGAN BEEKEEPER, published monthly at 406 E. St. Joseph St., Lansing, Mich. 50c a year, 3 years for $1. Sample copy upon request.

TOO LATE TO CLASSIFY

CLOVER EXTRACTED, 6¾c. Russell Joyce, Springville, Iowa.

FINEST New York white clover honey in any container. Angus Carruthers, Syracuse, Rt. 2, N. Y.

EXTRACTED buckwheat honey in 60-lb. cans and kegs. Seward Van Auken, Duanesburg, N. Y.

CHOICE Michigan clover honey in 60's, liquefied. Prices on request. Glenn Yeutter, Adrian, Mich. R. 4.

MINIMUM CAR fine quality Northern Michigan extracted. Price on request. George Jaquays, East Jordan, Michigan.

NORTHERN MICHIGAN, light amber honey, in new 60's. 5c per pound. Sample. 10c. Lewis A. McIntire, Boyne City, Mich.

FOR SALE—Clover and basswood honey in case or carlots. Honey stored at Elmwood, Wis. Address, M. C. Berry & Co., Box 684, Montgomery, Ala.

9 BASSWOOD SEEDLINGS 2 foot, or 6 Pink HONEYSUCKLE bushes 12 inch, or 25 Caragana (Siberian Pea Tree) hedging 18 inch for $1,00 postpaid—nectar producers. Lewis-Dadant dealers in this territory. Nicollet County Nursery, St. Peter, Minn.

QUALITY 3-BAND ITALIANS—Carefully reared queens, northern production tested stock. Package bees with queen introduced loose and a comb of brood, 2-pound package, $2.25; 3-pound package, $2.75. Combless packages with queen caged, 2-pound package, $2.00; 3-pound package, $2.50. Additional combs of brood 50 cents each, additional pounds of bees 50 cents each. Discounts, 6 or more packages 5%, large orders quoted on request. No disease, full weight, safe arrival. Certificate of inspection with each shipment. 10% deposit to book order and reserve shipping date in advance. A. D. St. Romain, Diamond, La.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

TIMESAVERS!!

TIMESAVERS are just that when they help you space frames in supering. With TIMESAVERS you can space nine frames to the standard 10-fr. super, or ten frames to the 11-fr. Dadant super, in THIRTY SECONDS! TIMESAVERS were developed and proven practical in Northern Minnesota apiaries. TIMESAVERS are simple devices, when once used will be considered as necessary in the tool kit as the veil, hive tool and smoker! Cut your supering costs, use TIMESAVERS!

Price (state kind of super) $2.50 postpaid.

Patent pending. (Circular for the asking.)

H. A. Schaefer **Osseo, Wis.**

XUM

Happy New Year

and a Prosperous 1940

As the new year begins, your thoughts naturally turn to planning business for the coming season.

Plan to use our Imported Italian

Package Bees

to replace winter loss, or make increase.

You will find them—Gentle, Thrifty, Hardy and Longer-lived than the average bees.

	Pkg.	Nuclei
2-lb. with queen	$2.45	$2.60
3-lb. with queen	3.15	3.30
Each additional lb. bees add		.70
Each additional comb add		.40
Queenless packages deduct		.75

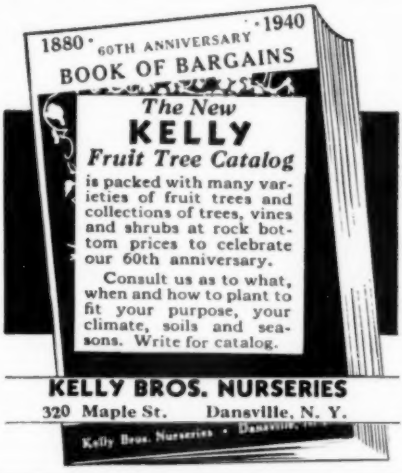
—Discounts—

$ 1 to $ 50—Net	$ 250 to $ 500—15%
50 to 100— 5%	500 to 1000—20%
100 to 250—10%	1000 up 25%

If you have not received our circular a card will get you one.

Rossman & Long

P. O. Box 133. Moultrie, Ga.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BOOK OF BARGAINS
The New
KELLY
Fruit Tree Catalog
is packed with many varieties of fruit trees and collections of trees, vines and shrubs at rock bottom prices to celebrate our 60th anniversary.
Consult us as to what, when and how to plant to fit your purpose, your climate, soils and seasons. Write for catalog.
KELLY BROS. NURSERIES
320 Maple St. Dansville, N. Y.

FOR SALE

Italian Bees and Queens—nothing but the best. Write us what you want and we will satisfy you in Bees and Prices. We will give you satisfaction.

GRAYDON BROTHERS
Route 2, Greenville, Ala.

BETTER BE SAFE THAN SORRY

Buy your bees and queens from a breeder with a reputation for highest quality and prompt service. Write for prices.

J. M. CUTTS & SONS
R 1, Montgomery, Ala.

Full Weight

packages of young vigorous Italians. They are hardier, gentler, and excellent honey gatherers. Positively shipped on time. Safe arrival and satisfaction guaranteed. 2-lb. pkg. with queen, $2.45. 3-lb. pkg. with queen, $3.15.

Early order and quantity discounts.

W. E. PLANT, Hattiesburg, Miss.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

2 Years $1.50

American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

SAMPLE COPY FREE.

$1.00 a year, 2 years $1.50 in U. S. A. and Canada Combined with Gleanings in Bee Culture, both magazines, ONE YEAR, $1.60. This offer good only in the United States. Address—

American Bee Journal, Hamilton, Ills.

Breeding Better Bees

In the spring of 1938 we established at Sioux Rapids, Iowa, an experimental yard of three hundred colonies to ascertain the difference in various sized packages, different strains and races of bees, and any other information which would be of benefit to the buyers of package bees. Tests so far have shown that there is very little difference in Italians and Caucasians insofar as honey production goes, but we have noted a wide range in production in individual colonies and this is where we think much improvement can be made by the selection of these outstanding queens for breeding purposes.

We cannot go into detail here, but do this to show you we are doing what we can to give you better bees at all times, and believe this will be worth money to you if you buy your bees from us.

We believe you have found our service satisfactory. You may also expect courtesy, promptness, and efficiency in your future dealings with us. Your orders booked now without deposit, and subject to change or cancellation on your part at any time before shipment. Let us supply your need this season.

Literature and Prices upon Request.

The Stover Apiaries

Mayhew, Mississippi

XUM

For Authentic Information

on a few of the many accomplishments of

American Honey Institute

during 1939 read carefully page 27 of this issue

One of the leaders in our industry said recently: "The Institute is, in my opinion, the outstanding hope for the honey industry."

Help yourself by helping the Institute. (Even $1.00 will help.)

Send remittance to

American Honey Institute
Madison, Wisc.

You Asked for It

A type of package that would reduce
SUPERSEDURE

Here's The Answer:
PUETT'S SPECIAL LOOSE-QUEEN PACKAGE

2-lb. Loose-queen Pkg., $2.60 2-lb. Caged-queen Pkg., $2.45
3-lb. Loose-queen Pkg., $3.30 3-lb. Caged-queen Pkg., $3.15

Write for descriptive booklet and literature. It's free.

The Puett Company, Hahira, Ga.

Got a Hobby?

Get more pleasure and profit from your hobby by reading the magazine that is especially for your interest. If your hobby is not listed below, write us and we will advise you what magazine covers it.

All magazines are monthlies except where otherwise noted.

Introductory Copy		Year's Subscription
15c	Gleanings in Bee Culture	$1.00
10c	Sheep Breeder	1.00
10c	The Sheepman	1.00
25c	Belgian Journal (quarterly)	1.00
10c	American Farm Youth (10 nos.)	.75
15c	American Pigeon Journal	1.00
15c	American Rabbit Journal	1.00
10c	American Turkey Journal	.50
10c	Angora (Goat) Journal	1.00
20c	Goat World	2.00
10c	Milking Shorthorn Journal	.50
10c	Hog Breeder	1.00
10c	Swine World (P.C.'s only)	1.00
15c	Small Stock (rabbits, cavies, etc.)	1.00
15c	American Bee Journal	1.00
10c	Beekeepers' Item	1.00
	Poultry Item	.25
	Leghorn World	.25
	Plymouth Rock Monthly	.25
	Rhode Island Red Journal	.25

Act Quickly. Rush your order today.

Send coin, bill, money order, check or stamps.

MAGAZINE MART
Dept. GB, La Grange, Illinois

MACK'S QUEENS
(They Speak for Themselves)
List your orders for 1940.
We guarantee to please you.
HERMAN McCONNELL
Robinson, Rte. 2. Illinois

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership in the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

Gaspard's

Quality Golden and Three-Banded Queens, and package bees, either on comb or combless, for Spring 1940 delivery. Twenty-one years' experience which assures you of prompt and efficient service, satisfaction guaranteed. Write for prices on type of packages you need, and will be glad to figure with you. Place your order early and reserve shipping date. Address

J. L. Gaspard, Hessmer, La.

BETTER BRED QUEENS Three-banded Italians

Book your orders now. No deposit required. Subject to change on short notice. Our prices are in line with the best shippers. Let us quote you.

CALVERT APIARIES, CALVERT, ALABAMA

Garon's Three-banded "Progeny Test" Italian Bees and Queens

SEND US YOUR NAME FOR OUR 1940 CIRCULAR.

Learn why we are able to produce better bees with our fundamentally correct "Progeny Test" queens.
Learn of the many other ways in which we satisfy our customers. You will find our service outstanding. Do not place your orders until you have read our circular.

GARON BEE COMPANY, DONALDSONVILLE, LA., U. S. A.

Genuine Mountain Gray
Bees and Queens For 1940

No increase in prices. No deposit asked to book your orders now for April and May delivery. We offer you quality Bees and Queens, which are backed by 16 years selective breeding of Caucasians only. No disease, safe delivery, and satisfaction guaranteed.

BOLLING BEE CO., Bolling, Ala.

A Good Rule to Go By

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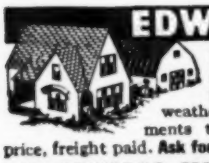

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I HEREBY RESOLVE—

(Continued from page 21)

Put a tablespoon of chopped dates and 1 tablespoon of honey in each custard cup and fill with a custard made by beating the eggs and combining the salt, honey, milk and nutmeg. Set cups in a pan of warm water and bake in a very moderate oven, 325 degrees F. for one hour. Serves 8.

Honey Carrot Buns

Two cups milk, 2 cakes compressed yeast, ¼ cup lukewarm water, 2 eggs, 1 cup cooked sieved carrots, ½ cup cooking oil, 3 tablespoons honey, 1½ teaspoons salt, 1 cup graham flour and sufficient white flour to make a stiff dough.

Scald milk and cool. Dissolve the yeast cakes in the lukewarm water; add to milk when cool. Stir in beaten eggs, carrots, shortening, honey, salt and graham flour. Mix well and add enough white flour to make a stiff dough, not quite as stiff as for bread dough. Knead until smooth and elastic. Grease top, cover and let rise to double in bulk; pinch off small portions and shape into buns. Let rise until very light. Bake in a fairly hot oven, 400 degrees F. for 20 to 25 minutes. Brush tops with butter and remove from pans at once.

A happy and a better honey year to each and everyone of you!

Aurora, Nebr.

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TEMPERATURE OF THE WINTER CLUSTER

(Continued from page 11)

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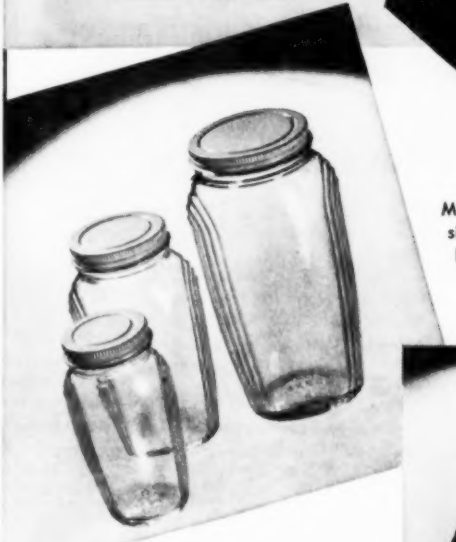

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